Shelf No. 4 to M630.5.C128

METROPOLITAN
TORONTO
LIBRARY

789
YONGE
TORONTO
M4W 2G8

Aug 2013

43326

Horticulture in the School and in the Home

The Canadian Horticulturist

JANUARY, 1907

Volume 30, No. 1 TORONTO Price 50 Cents a Year

A NEW YEAR SCENE IN CANADA

McLean Kobb

THE ONLY HORTICULTURAL PUBLICATION IN CAN[illegible]A

Issued Each Month

Established 1856

Mixture Packet 10c.

IF YOU WISH

an up-to-date Vegetable or Flower Garden the coming season, you must have

SIMMERS'

Seed Catalogue

For 1907

Because it contains the most complete list of Vegetables and Flowers, together with many striking novelties. Simmers' Field, Vegetable and Flower Seeds have for over fifty years been staple with the best farmers, market gardeners and critical private planters. When you buy seeds, you naturally expect them to germinate. This is an absolute necessity, but the most important point is the quality of the vegetable or flower produced. Simmers' quality seeds cover this, because we buy from acknowledged specialists, and we spare no expense in procuring the best Seeds for germination and productiveness. It tells you about it in our Seed Catalogue for 1907, which is mailed FREE for the asking. Write at once.

J. A. SIMMERS

SEEDS — PLANTS — BULBS

TORONTO, ONTARIO

WAGGONER EXTENSION LADDER

enables you to hand-pick all the apples on the tree. Its extension feature permits it to run through the tree—not only to rest on the outside

Good for every purpose about a farm that a ladder is used for.

Very light and absolutely safe.

Waggoner Ladder Co., Limited

London Ont

Order at Once

WE ARE BUSY—ORDER AT ONCE—SEND FOR CIRCULARS

Mention The Canadian Horticulturist when writing

THE PHOTO-ENGRAVERS LIMITED.

DESIGNERS ILLUSTRATORS

ENGRAVERS AND ETCHERS

10 JOHNSTON LANE

TORONTO PHONE MAIN 5251 ONTARIO

Mention The Canadian Horticulturist when writing

A Nice Premium will be given Free to all Readers who Buy Goods from Advertisers.

The Canadian Horticulturist

Contents for March

Power Spraying in Nova Scotia . . . *Cover*
Photograph furnished by F. C. Sears, Truro, N.S.

Fruits and Fruit Growing

Selecting and Planting Fruit Trees *G. Reynaud* 79
Growing European Plums . . . *C. C. Pettit* 80
The Gooseberry . . . . *Stanley Spellette* 80
The Importance of Spraying . *R. W. Starr* 81
Photograph by F. C. Sears, Truro, N.S.
Varieties for the North . . . *G. C. Caston* 82
The Best New Varieties of Strawberries . . . . . *E. B. Stevenson* 83
Varieties for Manitoba . . *F. W. Broderick* 84
Renovating an Old Orchard
The Apple Aphis 84
Transplanting Currants

Floral Department

The First Flowers of Spring . *Roderick Cameron* 85
Shade Trees for Our Cities *Prof. D. P. Penhallow* 86
The Amateur's Greenhouse 88
The Leopard Plant . . . *S. Armstrong* 88
The Care of Garden Tools 88
Lawn and Garden Notes 88
Timely Pointers for Amateur Flower Growers . 89
The Best Way to Grow Sweet Peas. *Edwin Utley* 90

Vegetable Section

Growing Potatoes for Profit *W. A. Broughton* 91
Melons and Melon Growing . *W. G. Horne* 91
Celery a Profitable Crop . . . *J. Friendship* 92

General

Editorial 94
Practical Pointers on Small Fruit Culture . 96
The Evidence of the Chief of the Fruit Division . 97
New Brunswick Fruit Growers' Convention . 97
Ontario Vegetable Growers Plan Their Year's Work 101
Keeping Hens for Profit 104
British Columbia Notes 104
Prince Edward Island Letter 105

INDEX TO ADVERTISEMENTS

Banks . . . . . vi, viii
Baskets, Boxes and Ladders . . . 106, viii
Commission Merchants 104, 105
Engravers x
Fencing 105
Fertilizers . . . . . 102, 106, vii
Flower Pots . . . . . 106, ix
Fruit Growers' Supplies . . . . . 106, vii, viii
Garden Tools 97, 101, 103
Greenhouse Material viii
Horticultural Books . . . . . vii, viii
Manure Spreaders 103
Nursery Stock . . . . . iii, iv, 102, 104
Pianos and Organs x
Poultry, Incubators and Brooders 104
Salt vii
Seeds, Bulbs and Plants, v, vi, 101, 102, 103, 105, 106, vii
Spraying Machines and Insecticides, iii, 101, 102, 103, 106, vii, viii
Steamship Companies . . . . . ii, iv, xii
Typewriters x
Water Tanks iii

ESTABLISHED 1856

SIMMERS'
STANDARD
SEEDS

There is no guesswork in selecting the best varieties of either Vegetable or Flowers from our

SEED CATALOGUE

We give our customers the benefit of the numberless practical tests made in years gone by. Of each kind of vegetables we select the best for all purposes. If you plant these thoroughbred strains there will be no disappointment in either the quality or productiveness of your garden. Our beautifully ILLUSTRATED CATALOGUE is free for the asking. Write for it now

J. A. SIMMERS
SEEDS—BULBS—PLANTS
TORONTO, ONT.

Mention The Canadian Horticulturist when writing

FLOWERING BULBS

JOHN A. BRUCE & CO. HAMILTON — REGAL — TRADE MARK — SEEDS

GLADIOLUS

Gladiolus are of the easiest culture. The great wealth and varicty of color, the richness of their markings, and size of the flowers and the profusion of bloom, all combine to make them one of the most effective plants for the garden, either for massing or for growing as single specimens.

BRUCE'S MIXED—Good ordinary mixture, 10 for 20c., 25 for 40c., $1.50 for 100.
BRUCE'S WHITE AND LIGHT SHADES—Choice, 10 for 40c., 25 for 80c., $3.00 for 100.
GROFF'S HYBRID SEEDLINGS—Fine Mixed, 10 for 40c., 25 for 75c., $2.50 for 100.
CHILDSII—Choice Mixed, 10 for 50c., 25 for $1.00, $3.50 for 100.
GROFF'S HYBRID SEEDLINGS—Newest shades of red, pink, white, yellow, blue, lilac, etc.; 12c. each, 10 for 90c., 25 for $2.00.
NOVELTIES—Almost any color desired, 20c. each. 10 for $1.60, 25 for $2.00.

DAHLIAS

Splendid collection of named varieties in Show, Cactus and Pompon Dahlias, 20c. each, $2.20 per dozen. Mixed sorts, ordinary varieties, 10c. each, $1.20 per doz.

LILIES

Auratum, Lancifolium Album and Rubrum, Elegans, Pardalinum, Tigrinum, Umbellatum, Lancifolium Wallacei and Tenuifolium, 15c. each, $1.50 dozen.

Prices all Postpaid

Now ready, our handsome 96-page Catalogue of Seeds, Plants, Bulbs, Poultry Supplies, Garden Implements, etc. Send for it. Free.

John A. Bruce & Co., Hamilton, Ont.

SEED MERCHANTS ESTABLISHED 1850

Mention The Canadian Horticulturist when writing

¶Dependable Quality, High Germination and Expert Selection, have gained for

RENNIE'S SEEDS

the confidence of Canada's leading Horticulturists and Agriculturists.

¶Remember this when deciding on Seed Supplies for 1907.

¶In the meantime send for a copy of The Rennie Seed Annual. Now!

WM. RENNIE CO., LTD.

T O R O N T O

And:—MONTREAL, WINNIPEG, VANCOUVER

Mention The Canadian Horticulturist when writing

SEEDS, BULBS AND PLANTS

Send for our 1907 Catalogue, which is free to all horticulturists. All the best novelties in Plants, Bulbs and Seeds are fully described and most of them are illustrated.

OUR NEW ASTER ENCHANTRESS

is one of the best offered in years.
TRY IT

Roses, Shrubs, Boston Ivy, Etc.

The Steele, Briggs Seed Co.
Limited

TORONTO HAMILTON WINNIPEG

Mention The Canadian Horticulturist when writing

The Sovereign Bank of Canada

NOTICE is hereby given that a dividend of one and one-half per cent. (1½%) for the current quarter, being at the rate of six per cent. per annum on the capital stock of this bank, has been declared and the same will be payable at the head office and at the branches on and after Thursday, the 16th day of May next. The transfer books will be closed from May 1st till May 15th, both days inclusive. By order of the Board.

D. M. STEWART,
General Manager

Toronto, 30th March, 1907

78 Branches Throughout Canada

Mention The Canadian Horticulturist when writing

The Canadian Horticulturist

Contents for June

Spring Bloom in Dundurn Park, Hamilton — Cover

Fruits and Fruit Growing

Thinning Fruit on Trees . . . *E. D. Smith* 135
Ripe Strawberries and How to Handle Them . 136
Relation of Tillage to Soil Moisture 137
Photograph by C. E. Saunders, Ottawa
The Currant . . . . . *Wm. Fleming* 138
Currant Bush Pests . . . . *W. E. A. Peer* 138
Originating Varieties of Apples . *B. S. Pickett* 138
Sketch after Jordan

Flower Garden and Lawn

Weeds in Lawns 140
Dendrobium Wardianum 140
Photograph furnished by W. J. Wilshire
Lawn and Garden Hints for June 141
Photos of backyards by Galbraith (142), and E. Utley (143, 145)
Color Schemes for Gardens . *W. J. Wilshire* 143
Mowing the Lawn 144
Growing Gourds 144
The Mixed Flower Border . . . *Wm. Hunt* 144
Grow Salad Crops at Home 145
Rose Pests 146
Culture of Gladioli . . . . . *H. H. Groff* 146
Bedding Plants 146
To Grow Good Poppies . . . *R. B. Whyte* 146
Window Boxes 147

Vegetable Department

Cultivating the Market Garden 147
Cauliflower Growing . . . . . *F. F. Reeves* 147
Transplanting Tomatoes . . *Angus McInnis* 148
Growing Celery . . . . . *J. Friendship* 148

General

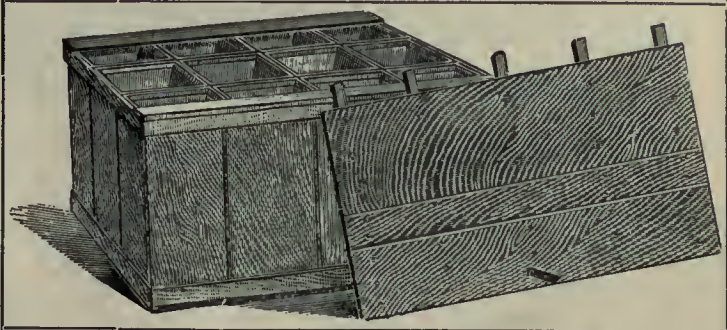
Editorials 150
Hardy Trees and Shrubs . . . *C. S. Harrison* 152
Value of Northern Trees . . *W. T. Macoun* 152
Fruit Crop Reports 153
Notes from the Provinces 154
Cooking Recipes . . . . . *L. Shuttleworth* 155
Bulletins and Reports 155
Vegetable Crop Reports 157
Poultry Department 158

INDEX TO ADVERTISEMENTS

Acetylene Lamp ix
Banks . . . . . vi, viii
Baskets, Boxes and Ladders . . . . . v, vi, 158
Cherry Picker 158
Commission Merchants 158
Fencing ix
Fertilizers . . . . . iv, x
Flower Pots x
Furnaces vii
Greenhouse Material vi
Horticultural Books . . . . . viii, ix, x
Nursery Stock . . . . . ix, xi, 157
Orchard and Garden Tools 156
Paper for Fruit Wrapping vi
Pianos and Organs iii
Rubber Stamps and Engravers . . . . . ix, iv
Salt x
Seeds, Bulbs and Plants vi
Spraying Machines and Insecticides . . . . . vii, iii, x
Steamship Companies . . . . . ii, 158, xi, xii
Typewriters iv
Veterinary Remedy vii
Water Tanks iii

BASKETS

We are Headquarters for all kinds of Splint Baskets



Veneer supplied for the protection of trees from mice during winter

FRUIT PACKAGES A SPECIALTY

SEND FOR OUR PRICES

The Oakville Basket Co. - Oakville, Ont.

Mention The Canadian Horticulturist when writing

Feed Your Land

WITH GOOD MANURE AND GET

GOOD RETURNS

MARCHMENT'S

SURE GROWTH COMPOST

IS THE BEST

Supplied to the Largest Nurserymen and Fruit Growers in Ontario

S. W. MARCHMENT

133 VICTORIA ST., TORONTO

Telephones Main 2841 Residence Park 951

Mention The Canadian Horticulturist when writing

SPECIAL GLASS
FOR GREENHOUSES

Conservatories of The Dale Estate, Brampton, Ont.
Glass supplied by our Toronto Branch

GOOD QUALITY, FLAT, EVEN THICKNESS AND WELL CUT

PILKINGTON BROS.
Limited
Toronto, Montreal, Winnipeg, Vancouver

Mention The Canadian Horticulturist when writing.

Apple Barrel Stock

WE PREPARE STOCK specially for export apple barrels, ensuring good packages on arrival at destination. Write us for prices

The Sutherland-Innes Co.
Limited
CHATHAM, ONTARIO

Mention The Canadian Horticulturist when writing

SEEDS, BULBS AND PLANTS

Send for our 1907 Catalogue, which is free to all horticulturists. All the best novelties in Plants, Bulbs and Seeds are fully described and most of them are illustrated.

Gladioli, Cannas and Dahlias a Specialty

Roses, Shrubs, Boston Ivy, Etc.

The Steele, Briggs Seed Co.
Limited
TORONTO HAMILTON WINNIPEG

Mention The Canadian Horticulturist when writing

The Sovereign Bank of Canada

has 1,195 Shareholders and over 50,000 Customers. ¶The public are confidently referred to any of these for information regarding the Bank's facilities, methods and attention to business. ¶Interest paid 4 times a year on savings deposits.

78 BRANCHES THROUGHOUT CANADA

Mention The Canadian Horticulturist when writing

The Canadian Horticulturist

Contents for July

View of Grey Canal, Coldstream Valley, B.C. Cover
Photograph furnished by H. Gordon, Vernon

Fruits and Fruit Growing

Fruit Industry of British Columbia *Maxwell Smith* 159
Map Sketch by the Author. Map and article copyrighted.
Fruit Growing in Okanagan Valley . *H. Gordon* 162
Packing British Columbia Fruit. . *B. T. Boies* 153
Diagrams and photograph by the author.

Flower Garden and Lawn

Care of Gladiolus Flowers . . . *H. H. Groff* 165
Early Summer Border Plants. . . *Wm. Hunt* 166
Lawn and Garden Hints for July 167
Photograph by Galbraith, Toronto
Cattleya Maxima. . . . . *F. J. Goode* 168
Photograph by the author
The Peony . . . . . *C. D. Harrison* 169
Care of Dahlias 169
To Keep Cut Flowers Fresh 169
Walks and Driveways. 170
Styrax Japonica . . . . *Roderick Cameron* 170
Saving Seed of Sweet Peas 170

Vegetable Department

Growing Squash . . . . . *A. McMeans* 170
Potato Diseases . . . . . *Douglas Weir* 171
Seed Selection . . . . . *"Rambler"* 172
Melon Pests . . . . . *W. G. Horne* 172
Dust Spray for Cabbage 172

General

Editorial 174
The Niagara Experiment Station 175
Cooperative Fruit Growers Meet. 176
Fruit Crop Reports 177
Vegetable Crop Reports 177
Notes from the Provinces. 178
B.C. Fruit Growers' Association *W. J. Brandith* 179
A Comparison of Methods . . . *M. Burrell* 179

INDEX TO ADVERTISEMENTS

Acetylene Lamp ix
Banks . . . . . v, vi
Baskets, Boxes and Ladders . . . . . 156, vii, viii
Commission Merchants 180
Fencing ix
Fertilizers . . . . . v, ix, x, 182
Flower Pots x
Furnaces vii
Gasoline Engines viii
Greenhouse Material vii
Horticultural Books x
Land Companies . . . . . 181, vii
Nursery Stock . . . . . iii, 180, vi, v
Orchard and Garden Tools . . . . . viii, 179, 181
Paper for Fruit Wrapping ix
Pianos and Organs . . . . . iii, 182, x
Roofing viii
Rubber Stamps and Engravers . . . . . vii, ix
Seeds, Bulbs and Plants . . . . . 182, vi, viii
Spraying Machines and Insecticides xi
Steamship Companies . . . . . i, 181, xi, xii
Typewriters viii
Veterinary Remedies . . . . . vii, 181
Water Tanks 182

We Make Large Shipments

of choice Nursery Stock to British Columbia every Fall and Spring, and guarantee delivery of stock in good condition. Ontario grown stock is *hardy*, being particularly suited to Eastern British Columbia. Our stock is *well branched* and grown at our *own nurseries*. Buy this stock to obtain healthy orchards. Write for free catalogue to

PELHAM NURSERY CO

49 WELLINGTON ST. E.

TORONTO ——— ONTARIO

N.B.—Have YOU spare time to sell trees? If so, write for agency terms. We want reliable agents.

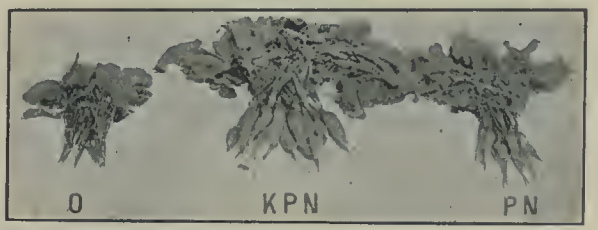
Mention The Canadian Horticulturist when writing

POTASH

for FIELD, GARDEN, ORCHARD

POTASH promotes maturity and counteracts the effect of an excess of nitrogen in the soil produced by a too heavy application of farmyard manure or from other causes. POTASH is a direct plant food and is indispensable

Fertilizer Experiment on Radishes by Otto Herold, Waterloo, Ont., 1906



Treatment:	Unfertilized	With Potash	Without Potash
Result:	Non-saleable	$200.00	$20.00 per acre realized

POTASH in the highly concentrated forms of Muriate of Potash and Sulphate of Potash is obtainable of all leading Fertilizer Dealers. Pamphlets treating of the cultivation and fertilization of all farm crops will be sent free on application.

The Dominion Agricultural Offices of the Potash Syndicate

1102, 1105 TEMPLE BUILDING, TORONTO

Mention The Canadian Horticulturist when writing

SEEDS, BULBS AND PLANTS

Send for our 1907 Catalogue, which is free to all horticulturists. All the best novelties in Plants, Bulbs and Seeds are fully described and most of them are illustrated.

Gladioli, Cannas and Dahlias a Specialty

Roses, Shrubs, Boston Ivy, Etc.

The Steele, Briggs Seed Co.
Limited
TORONTO HAMILTON WINNIPEG

Mention The Canadian Horticulturist when writing

The Sovereign Bank of Canada

Current Accounts and Savings Deposits received at all he branches at best rates consistent with conservative banking Interest paid FOUR times a year on Savings Deposits

78 BRANCHES THROUGHOUT CANADA

Mention The Canadian Horticulturist when writing

CANADA'S GREATEST NURSERIES

Mention the Canadian Horticulturist when writing

GROW TREES SPECIALLY FOR BRITISH COLUMBIA PLANTING

OUR EXPERIENCE as the PIONEER NURSERY in BRITISH COLUMBIA enables us to supply TREES of the RIGHT AGE, of the BEST VARIETIES in CLEAN, HEALTHY, WELL-MATURED STOCK.

Department of Agriculture, Experimental Farm of British Columbia,
MESSRS. STONE & WELLINGTON, AGASSIZ, May 29th, 1906.
Toronto, Ontario.

GENTLEMEN,—Yours of the 21st to hand. I know that you will be pleased to learn that I have had splendid success with the scions I received from you. Your trade in the Kootenays should increase very rapidly, as your trees are good and being grown in a limestone soil are better constituted than those grown on this Coast where there is no lime in the soil.

Yours faithfully,
(Signed) THOS. A. SHARPE.
Superintendent

OUR TREES are grown under CLIMATIC CONDITIONS ALMOST IDENTICAL with those of the best Fruit Districts of BRITISH COLUMBIA.

Send for HANDSOME NEW CATALOGUE of Specialties. SPECIAL PRICES on Trees in LARGE QUANTITIES.

SALESMEN WANTED IN EVERY DISTRICT

STONE & WELLINGTON

TORONTO ONTARIO

The Canadian Horticulturist

Contents for August

A Type of Ornamental Gardening . . . . Cover

Fruits and Fruit Growing

Horticulture in the West . . *F. W. Brodrick* 183
Larger Orchards: Smaller Trees . *A. McNeill* 184
Fruit Growing in the West . *D. W. Buchanan* 185
Apple Growing in Manitoba . *A. P. Stevenson* 186
Cover Crops . . . . . *H. S. Peart* 186
Fruits for New Ontario . . . . *Chas. Young* 186
Varieties for the Prairie Provinces. 187
Photograph furnished by R. M. Palmer

Flower Garden and Lawn

Perennials in Manitoba . *Dr. H. M. Speechly* 189
Photograph by the author
Lawn and Garden Hints for August 191
Care of the Lawn . . . . . *R. L. Canning* 192
Shipping Flowers 192
An Attractive Flower Garden . *W. T. Macoun* 193
Photograph furnished by the author

Vegetable Department

Growing Celery in Manitoba . . *S. Larcombe* 194
Vegetables in Saskatchewan . *Angus MacKay* 194
Diseases of the Potato . . . . *Douglas Weir* 195
Tomato Growing in Alberta 196

General

Editorial 198
Iced Cars for Fruit 198
New Brunswick Fruit Growers' Association . . 199
Fruit Crop Reports 200
Vegetable Crop Reports 201
Notes from the Provinces 202
Desired—A Dominion Conference in 1908 . . 204
British Market for Canadian Fruit vii
Onion Blight or Mildew . . . *W. T. Macoun* ix

INDEX TO ADVERTISEMENTS

Acetylene Lamp viii
Banks . . . . . v, x
Baskets, Boxes and Ladders . . . . iv, 202, 204, 205
Commission Merchants . . . . . v, 202, 206, vii, x
Exhibition 206
Fencing vii
Fertilizers 204, 205, 206
Flower Pots x
Fruit Evaporator 203
Furnaces 206
Gasoline Engines x
Greenhouse Material 205
Land Companies . . . . . iv, vi, 201, 204
Nursery Stock . . . . . iii, vi, 200
Orchard and Garden Tools x
Paper for Fruit Wrapping . . . . . iii, 203, viii
Pianos and Organs ix
Roofing ix
Rubber Stamps and Engravers . . . . . viii, x
Seeds, Bulbs and Plants . . . . . iv, 205, x
Spraying Machines and Insecticides xi
Steamship Companies . . . . . ii, 201, xi, xii
Typewriters viii
Veterinary Remedies x
Water Tanks 206

The Sovereign Bank of Canada

Head Office, Toronto Paid-up Capital, $3,000,000

BOARD OF DIRECTORS:

ÆMILIUS JARVIS, Esq. - - *President*
RANDOLPH MACDONALD, Esq., *1st Vice-President*
A. A. ALLAN, Esq. - *2nd Vice-President*

HON. D. MCMILLAN — HON. PETER MCLAREN
ARCH. CAMPBELL, Esq. M.P. — W. K. MCNAUGHT, Esq. M.P.P.
A. E. DYMENT, Esq. M.P. — ALEX. BRUCE, Esq. K.C.
F. G. JEMMETT, Esq. *Gen'l-Man.* — R. CASSELS, Esq. *Asst. Gen'l-Man.*

Savings Bank Department

Interest at best current rates paid quarterly.

88 BRANCHES THROUGHOUT CANADA

Mention The Canadian Horticulturist when writing

Export Apples

11th YEAR

WOODALL & CO., LIVERPOOL
The Pioneers of the British Export Trade, 1847.
BOYD, BARROW & CO., GLASGOW
35 years' best standing.
BRISTOL FRUIT BROKERS, LTD., BRISTOL
A live company in good standing.
M. ISAACS & SONS, LTD., LONDON
Unsurpassed in London.

Firms in all important markets. Liberal advances. Cable quotations. Reliable information. Agents at Seaboard. Write me what you have for sale or consignment.

EBEN JAMES

Phone 5735 Main TORONTO 103 Union Station

Mention The Canadian Horticulturist when writing.

BRITISH COLUMBIA IRRIGATED FRUIT LANDS

The Kettle Valley Irrigated Fruit Lands Co. have just put on the market the first part of their magnificent Fruit Lands, which have been subdivided into lots of convenient sizes; a large number of these lots front along the Kettle River.

PRICES FROM $100 TO $150 PER ACRE

with an ample supply of water for which NO RENT is charged. Soil a rich, sandy loam, which produces the finest fruits and vegetables. Valuable local markets in surrounding mining towns where prices for produce are always high. Splendid climate and excellent railway facilities.

Apply for Full Particulars to

W. O. WRIGHT

MANAGING DIRECTOR

MIDWAY
British Columbia

Mention The Canadian Horticulturist when writing

HARDY TREES FOR MANITOBA SASKATCHEWAN AND ALBERTA

GROWN AND FOR SALE BY

CANADA'S GREATEST NURSERIES

Varieties tested and recommended by the WESTERN EXPERIMENTAL STATIONS at BRANDON and INDIAN HEAD, and now being successfully grown by thousands of our Western customers.

Hardy RUSSIAN APPLES and CRABS, AMERICANA PLUMS, largest collection of HARDY SMALL FRUITS, SEED POTATOES, quick growing hardy trees for WINDBREAKS and SHELTER BELTS.

SEND FOR OUR HANDSOME DESCRIPTIVE CATALOGUE, AND LIST OF HARDY WESTERN SPECIALTIES

Salesmen Wanted If we are not represented in your district, write us for terms. We want an agent in every town and district in the West. Liberal terms. Pay weekly. Specially designed outfit for Western agents.

STONE & WELLINGTON

FONTHILL NURSERIES -- -- TORONTO, ONTARIO, CANADA

Mention The Canadian Horticulturist when writing

The Canadian Horticulturist

Contents for September

Harvesting Apples in Ontario . . . . . Cover
Photograph by Sallows

Fruits and Fruit Growing

British Market for Canadian Fruit 207
Apples—From Grower to Consumer *J. A. McBride* 208
Packing Apples in Boxes . . . *Alex. McNeill* 209
Photograph by Sallows
Marketing Peaches 210
Photographs by Pringle and Booth (pages 210 and 211)
Harvesting and Marketing Apples *P. J. Carey* 211
Pointers on Box Packing . . *Robt. Thompson* 212
Harvesting Blackberries . . . . *H. S. Peart* 212

Flower Garden and Lawn

Perennials in Manitoba . *Dr. H. M. Speechly* 213
Photograph furnished by W. T. Macoun
Canadian Novelties in Gladioli 214
Lawn and Garden Hints for September . . . 215
Protection for Perennials . . . . *S. S. Bain* 216
Picking Fruits at Home 216
Odd Hanging Baskets 218
Making the Herbaceous Border . *E. Byfield* 217
Photographs furnished by the author

Vegetable Department

Blanching Celery 218
Greenhouse Lettuce . . . . . *F. D. Ghent* 218
Marketing Melons . . . . . *W. G. Horne* 218
Potato Diseases . . . . . *Douglas Weir* 219
Fall Work With Potatoes . *W. A. Broughton* 219

General

An Establishment that is a Credit to Canada . 220
Editorial 224
Vegetable Crop Reports 226
Grants to Horticultural Societies 227
Fruit Crop Reports 228
Notes from the Provinces 229
Recent Bulletins on Orchard Pests *Wm. Lochhead* 231
Fruit Growing in Pr. Edw. Island *A. McNeill* 233
Preserving Fruits and Vegetables ix

INDEX TO ADVERTISEMENTS

Acetylene Lamp 234
Banks . . . . . viii, xii
Baskets, Boxes and Ladders . . . . iv, v, 232, 233, x
Colleges 230
Commission Merchants . . . . vii, viii, 226, 228, xi, xii
Exhibition v
Fencing 233
Fertilizers . . . . . iv, v, 233, xiii
Fireless Cooker ix
Flower Pots xii
Furnaces 234
Gasoline Engines xii
Greenhouse Material xi
Nursery Stock . . . . . iii, 229, xi
Orchard and Garden Tools . . . . . 228, xii
Paper for Fruit Wrapping . . . . . vi, 233
Pianos and Organs . . . . . iv, xiii
Real Estate 226
Roofing xi
Rubber Stamps and Engravers . . . . . xii, xiii
Seeds, Bulbs and Plants . . . . . vii, viii, x, xii
Spraying Machines and Insecticides . . . . . xiv, xv
Steamship Companies . . . . . ii, 231, xv, xvi
Typewriters x
Veterinary Remedies xii
Water Tanks xiv

Beautiful Spring Flowers

We offer a complete assortment of the following Spring and Winter Flowering Bulbs, for planting in October-November.

White Calla Lilies, 20c. each

FREEZIAS, SNOWDROPS, LILIES, CROCUS, TULIPS, NARCISSUS, HYACINTHS, ETC.

Plants, Bird Seed and Supplies, Poultry Supplies, Flower Pots and Fancy Vases, Lawn Grass Seed, Vegetable, Flower and Farm Seeds of all descriptions.

Send for illustrated descriptive catalogue, now ready—FREE

SPECIAL OFFER

Collection No. 1 — For House Culture, 26 Bulbs, retail price, 90c, for 50c, postpaid.

Collection No. 2 — For House Culture, 54 Bulbs, retail price, $1.80, for $1.00, postpaid.

Collection No. 5 — For Garden Culture, 50 Bulbs, retail price, 90c, for 50c, postpaid.

Collection No. 6 — For Garden Culture, 100 Bulbs, retail price, $1.80, for $1.00, postpaid.

John A. Bruce & Co., Hamilton, Ont.

SEED MERCHANTS ESTABLISHED 1850

Mention The Canadian Horticulturist when writing

Export Apples

11th YEAR

WOODALL & CO., LIVERPOOL
The Pioneers of the British Export Trade, 1847.

BOYD, BARROW & CO., GLASGOW
35 years' best standing.

BRISTOL FRUIT BROKERS, LTD., BRISTOL
A live company in good standing.

M. ISAACS & SONS, LTD., LONDON
Unsurpassed in London.

Firms in all important markets. Liberal advances. Cable quotations. Reliable information. Agents at Seaboard. Write me what you have for sale or consignment.

EBEN JAMES

Phone 5735 Main TORONTO 103 Union Station

Mention The Canadian Horticulturist when writing.

A Beautiful Collection of House Plants

for winter flowering can be had by planting a few bulbs this month. ¶But only well formed and fully developed bulbs should be planted. No amount of careful culture can make a poor bulb produce good blooms. ¶Remember this. ¶Our Dutch bulbs have been specially grown for us by Holland's leading bulb expert. They are well formed, fully developed and properly cured; and with the most ordinary culture will produce pleasing results, both indoors and out. ¶Ask for our bulb catalogue if you have not already received one.

Wm. Rennie Co., Ltd., Toronto
and Montreal, Winnipeg and Vancouver

Write to the Nearest Address

Mention The Canadian Horticulturist when writing.

SEEDS, BULBS AND PLANTS

Send for our Bulb Catalogue, which is free to all horticulturists. All the best novelties in Bulbs, etc., are fully described and most of them are illustrated.

Palms, Rubber Plants
Shrubs, a Specialty

The Steele, Briggs Seed Co.
Limited
TORONTO HAMILTON WINNIPEG

Mention The Canadian Horticulturist when writing

APPLES WANTED FOR EXPORT

REPRESENTING

James Adam, Son & Co.
Liverpool

James Lindsay & Son, Limited
Glasgow

Nothard & Lowe, London

Manchester Fruit Brokers, Limited
Manchester

THESE are the largest and most reliable fruit merchants in Great Britain. Your interest demands the securing of our prices and terms of sale before selling your crop. Write to-day. Market cables received every sale day.

TELEPHONE MAIN 5131

A. E. W. PETERSON
APPLE BROKER

27 CHURCH STREET - TORONTO, CANADA

Mention The Canadian Horticulturist when writing

The Sovereign Bank of Canada

Head Office, Toronto Paid-up Capital, $3,000,000

BOARD OF DIRECTORS:

ÆMILIUS JARVIS, Esq. - - *President*
RANDOLPH MACDONALD, Esq., *1st Vice-President*
A. A. ALLAN, Esq. - *2nd Vice-President*

HON. D. MCMILLAN — HON. PETER MCLAREN
ARCH. CAMPBELL, Esq. M.P. — W. K. MCNAUGHT, Esq. M.P.P.
A. E. DYMENT, Esq. M.P. — ALEX. BRUCE, Esq. K.C.
F. G. JEMMETT, ESQ. *Gen'l-Man.* — R. CASSELS, ESQ. *Asst. Gen'l-Man.*

Savings Bank Department
Interest at best current rates paid quarterly.

88 BRANCHES THROUGHOUT CANADA

Mention The Canadian Horticulturist when writing

The Canadian Horticulturist

Contents for October

Picking Grapes Near Lake Huron . . . Cover
Photograph by Sallows

Fruits and Fruit Growing

Apple Growing in Quebec . . . . *R. Brodie* 235
A new Fruit Market Wanted in Toronto . . 236
Feed Orchard Trees with Proper Manures . . 237
Use of Sand in Transplanting 238
The Plum Glut This Year . . . *C. C. Pettit* 239
Photograph of Exhibition by Pringle and Booth
Grapes Near Lake Huron . . . *W. Warnock* 240
Packing Apples in Boxes . . . . *A. NcNeill* 240

Flower Garden and Lawn

Bulbs for the Window in Winter . *Wm. Hunt* 241
Photographs taken specially for The Canadian Horticulturist
Lawn and Garden Hints for October 243
The Fall Care of June Roses . *A. K. Goodman* 244
Preservation of Seeds 244
Forcing Plants by Ether . . . . *J. E. Howitt* 245
The Fragrant Freesia . . . . . *Wm. Hunt* 246
Making Root Cuttings 246

Vegetable Department

Growing Celery Easily . . . . *J. W. Rush* 246
Forcing Lettuce Under Glass . *Eugene Davis* 247
How Montreal Melons are Grown . . *R. Brodie* 247
Vegetable Crop Situation 254

General

The Largest Nursery Firm in Canada 248
Photographs by Pringle aad Booth
Editorials 252
Fruit Crop Reports 256
Notes from the Provinces 257
The Climate of the Okanagan Valley *H. Gordon* 258
Poultry Department . . . . . *S. Short* 259
A Dominion Conference Next Winter 260
At The Canadian National 262
The Niagara District Exhibition ix

INDEX TO ADVERTISEMENTS

Banks xii
Baskets, Boxes and Ladders . . . . . v, 262, x
Commission Merchants . . . . . vii, viii, 256 xi,
Exhibition iv
Fertilizers . . . . . 262, x, xi
Flower Pots xii
Furnaces 259
Gasoline Engines xii
Greenhouse Material xi
Horticultural Books xii
Nursery Stock . . . . . iii, 255, 258, 259, 260, 261
Paper for Fruit Wrapping x
Pianos and Organs . . . . . ix, xiii
Roofing xi
Rubber Stamps and Engravers . . . . . 256, xiii
Seeds, Bulbs and Plants . . . . . v, vi, vii, viii, 256, xii
Spraying Machines and Insecticides . . . . 257, xiv, xv
Steamship Companies . . . . . ii, 258, xv, xvi
Typewriters xiii
Veterinary Remedies xii
Water Tanks xiv

Beautiful Spring Flowers

We offer a complete assortment of the following Spring and Winter Flowering Bulbs, for planting in October-November.

White Calla Lilies, 20c. each

FREESIAS, SNOWDROPS, LILIES, CROCUS, TULIPS, NARCISSUS, HYACINTHS, ETC.

Plants, Bird Seed and Supplies, Poultry Supplies, Flower Pots and Fancy Vases, Lawn Grass Seed, Vegetable, Flower and Farm Seeds of all descriptions.

Send for illustrated descriptive catalogue, now ready—FREE

SPECIAL OFFER

Collection No. 1—For House Culture, 26 Bulbs, retail price, 90c, for 50c, postpaid.

Collection No. 2—For House Culture, 54 Bulbs, retail price, $1.80, for $1.00, postpaid.

Collection No. 5—For Garden Culture, 50 Bulbs, retail price, 90c, for 50c, postpaid.

Collection No. 6—For Garden Culture, 100 Bulbs, retail price, $1.80, for $1.00, postpaid.

John A. Bruce & Co., Hamilton, Ont.

SEED MERCHANTS ESTABLISHED 1850

Mention The Canadian Horticulturist when writing

Export Apples

11th YEAR

WOODALL & CO., LIVERPOOL
The Pioneers of the British Export Trade, 1847.

BOYD, BARROW & CO., GLASGOW
35 years' best standing.

BRISTOL FRUIT BROKERS, LTD., BRISTOL
A live company in good standing.

M. ISAACS & SONS, LTD., LONDON
Unsurpassed in London.

Firms in all important markets. Liberal advances. Cable quotations. Reliable information. Agents at Seaboard. Write me what you have for sale or consignment.

EBEN JAMES

Phone 5735 Main TORONTO 103 Union Station

Mention The Canadian Horticulturist when writing

A Beautiful Collection of House Plants

for winter flowering can be had by planting a few bulbs this month. ¶But only well formed and fully developed bulbs should be planted. No amount of careful culture can make a poor bulb produce good blooms. ¶Remember this. ¶Our Dutch bulbs have been specially grown for us by Holland's leading bulb expert. They are well formed, fully developed and properly cured; and with the most ordinary culture will produce pleasing results, both indoors and out. ¶Ask for our bulb catalogue if you have not already received one.

Wm. Rennie Co., Ltd., Toronto
and Montreal, Winnipeg and Vancouver

Write to the Nearest Address

Mention The Canadian Horticulturist when writing.

SEEDS, BULBS AND PLANTS

Send for our Bulb Catalogue, which is free to all horticulturists. All the best novelties in Bulbs, etc., are fully described and most of them are illustrated.

Palms, Rubber Plants
Shrubs, a Specialty

The Steele, Briggs Seed Co.
Limited
TORONTO HAMILTON WINNIPEG

Mention The Canadian Horticulturist when writing

APPLES WANTED FOR EXPORT

REPRESENTING

James Adam, Son & Co.
Liverpool

James Lindsay & Son, Limited
Glasgow

Nothard & Lowe, London

Manchester Fruit Brokers, Limited
Manchester

THESE are the largest and most reliable fruit merchants in Great Britain. Your interest demands the securing of our prices and terms of sale before selling your crop. Write to-day. Market cables received every sale day.

TELEPHONE MAIN 5131

A. E. W. PETERSON
APPLE BROKER

27 CHURCH STREET - TORONTO, CANADA

Mention The Canadian Horticulturist when writing

Apples for Export

D. CROSSLEY & SONS, Liverpool and Glasgow
The only firm selling apples **Exclusively** by **Private Sale.**

THOMSON & MATHIESON, Glasgow
The coming firm in the Glasgow market.

NORTH OF ENGLAND FRUIT BROKERS, Manchester
The largest apple receivers in Manchester.

HENRY LEVY, London
The oldest established house in London

These firms absolutely refuse to advance money to buy in opposition to independent shippers and have no bad debts to make up. They do their own selling and have no auctioneer charges to pay. Advances against Bills of Lading only. Market reports. Shipping agents at ports. Write for information.

A. S. CHAPIN
PHONE MAIN 3547
75 YONGE STREET - TORONTO

M ntion The Canadian Horticulturist when writing

The Canadian Horticulturist

Contents for November

Something to be Thankful For . . . . . Cover
Photograph by Pringle and Booth.

Fruits and Fruit Growing

The Fruit Marks Act . . . *Alex. McNeill* 263
How to Pack Apples in Barrels 265
Orchard Manures 266
Fall Cleaning in Orchard and Garden, *W. Lochhead* 266
Some Enemies of the Plum . *V. R. Gardner* 267
Packing Apples in Boxes . . . *J. A. Webster* 267

Flower Garden and Lawn

Hints on Dahlia Culture . . *Max Moineau* 268
What Amateurs Can do in November . . . 268
A Plan for a Hardy Border . . *E. Byfield* 270
Sketches by the Author.
Pointers on Window Gardening 270
Veronica . . . . . *Roderick Cameron* 271
Bulbs for Spring Flowering . . *R. B. Whyte* 272

Vegetables and Market Gardening

A Simple Experiment with Fertilizers . . . 273
Wintering Cabbage 274
Market Gardening Up-to-date 275
Vegetable Crop Reports 286

General

A Well-known Nursery Concern 276
Questions and Answers 279
Editorials 280
Fruit Crop Reports 282
Notes from the Provinces 283
The Dominion Fruit Conference 285
The Coldstream Valley . . . . *H. Gordon* 285

INDEX TO ADVERTISEMENTS

Banks xii
Baskets, Boxes and Ladders . . . . . v, x, xiv
Cold Storage . . . . . 290, xiv
Commission Merchants . . . . . vii, viii, 289, xii
Exhibition v
Fertilizers . . . . . vii, x, xiv
Flower Pots xii
Furnaces 290
Gasoline Engines xii
Greenhouse Material xi
Horticultural Books . . . . . 290, x, xii
Nursery Stock . . . . iii, iv, vi, 287, 288, ix, xi, xii, xiv
Pianos and Organs . . . . . iv, xiii
Roofing 290
Rubber Stamps and Engravers . . . . . xi, xiii
Seeds, Bulbs and Plants . . . . . viii, xi
Spraying Machines and Insecticides . . . . . 289, xv
Steamship Companies . . . . . ii, 288, xv, xvi
Typewriters xiii
Veterinary Remedies . . . . . ix, xi

Everybody having plants in the house, garden or conservatory desires them to be at their best—healthy and vigorous, abundant in bloom and foliage. ¶ With the knowledge gained by our thirty years' experience in manufacturing Fertilizers, we have prepared in "Watch-em-grow" a combination of plant food elements, mixed with the necessary chemicals, in proper proportions, and in the best forms, to give the maximum results. It is odorless and easily applied. ¶ That you may test the merits of "Watch-em-grow," we will send on receipt of ten cents, to any address in Canada, a package, postpaid, containing a sufficient quantity to fertilize eighteen to twenty plants for two months. Prices for larger quantities quoted on application.

The Standard Fertilizer and Chemical Co.
SMITH FALLS, ONT. Limited
Established 1879 Incorporated 1885

Export Apples

11th YEAR

WOODALL & CO., LIVERPOOL
The Pioneers of the British Export Trade, 1847.
BOYD, BARROW & CO., GLASGOW
35 years' best standing.
BRISTOL FRUIT BROKERS, LTD., BRISTOL
A live company in good standing.
M. ISAACS & SONS, LTD., LONDON
Unsurpassed in London.

Firms in all important markets. Liberal advances. Cable quotations. Reliable information. Agents at Seaboard. Write me what you have for sale or consignmen

EBEN JAMES
Phone 5735 Main TORONTO 103 Union Station
Mention The Canadian Horticulturist when writing

A Beautiful Collection of House Plants

for winter flowering can be had by planting a few bulbs this month. ¶But only well formed and fully developed bulbs should be planted. No amount of careful culture can make a poor bulb produce good blooms. ¶Remember this. ¶Our Dutch bulbs have been specially grown for us by Holland's leading bulb expert. They are well formed, fully developed and properly cured; and with the most ordinary culture will produce pleasing results, both indoors and out. ¶Ask for our bulb catalogue if you have not already received one.

Wm. Rennie Co., Ltd., Toronto
and Montreal, Winnipeg and Vancouver

Write to the Nearest Address

Mention The Canadian Horticulturist when writing.

SEEDS, BULBS AND PLANTS

Send for our Bulb Catalogue, which is free to all horticulturists. All the best novelties in Bulbs, etc., are fully described and most of them are illustrated.

Palms, Rubber Plants
Shrubs, a Specialty

The Steele, Briggs Seed Co.
Limited
TORONTO HAMILTON WINNIPEG

Mention The Canadian Horticulturist when writing

APPLES WANTED FOR EXPORT

REPRESENTING

James Adam, Son & Co.
Liverpool

James Lindsay & Son, Limited
Glasgow

Nothard & Lowe, London

Manchester Fruit Brokers, Limited
Manchester

THESE are the largest and most reliable fruit merchants in Great Britain. Your interest demands the securing of our prices and terms of sale before selling your crop. Write to-day. Market cables received every sale day.

TELEPHONE MAIN 5131

A. E. W. PETERSON
APPLE BROKER
27 CHURCH STREET - TORONTO, CANADA

Mention The Canadian Horticulturist when writing

Apples for Export

D. CROSSLEY & SONS, Liverpool and Glasgow
The only firm selling apples **Excluaively** by **Private Sale.**

THOMSON & MATHIESON, Glasgow
The coming firm in the Glasgow market.

NORTH OF ENGLAND FRUIT BROKERS, Manchester
The largest apple receivers in Manchester.

HENRY LEVY, London
The oldest established house in London

These firms absolutely refuse to advance money to buy in opposition to independent shippers and have no bad debts to make up. They do their own selling and have no auctioneer charges to pay. Advances against Bills of Lading only. Market reports. Shipping agents at ports. Write for information.

A. S. CHAPIN
PHONE MAIN 3547
75 YONGE STREET - TORONTO

Mention The Canadian Horticulturist when writing

The Canadian Horticulturist

Contents for December

View of Ontario Horticultural Exhibition . . Cover
Photograph by Pringle and Booth.

Fruits and Fruit Growing

San Jose Scale on Infested Fruit 291
Questions on Fruit Culture . . *G. Reynaud* 293
Group photograph by J. L. McLaren
Mulching the Strawberries . . *W. H. Burke* 294
Brown Rot . . . . . *V. R. Gardner* 295

Flower Garden and Lawn

An Experience with Asters . . *C. M. Bezzo* 295
Winter Protection for Plants . *V. R. Gardner* 296
Canadian Holly . . . . . *R. Cameron* 296
Pointers on Dahlia Culture . *Max Moineau* 297
Photographs by the Author
Kniphofia—Blanket Flower . . *R. Cameron* 298
Seasonable Hints for Amateurs 299
Group photograph by Pringle and Booth
Amateur's Greenhouse in December, *A. Alexander* 300

Vegetables and Market Gardening

The Marketing of Vegetables . *F. Williams* 301
Forcing Rhubarb with Ether . *J. E. Howitt* 302
Asparagus and Ginseng 302
Ontario Vegetable Growers' Convention . . 308

General

Questions and Answers 303
Editorials 304
Ontario Horticultural Exhibition 306
Fruit Growers' Convention 307
Ontario Horticultural Association 308
Notes from the Provinces 309
Dominion Fruit Conference Wanted 312
Petroleum Emulsion for San Jose Scale . . . 313
Ontario Horticultural Experiment Station . . viii

INDEX TO ADVERTISEMENTS

Banks 314
Baskets, Boxes and Ladders . . . . . iv, ix, x
Commission Merchants 313, 314
Fencing 312
Fertilizers . . . . . v, ix, x
Flower Pots vii
Furnaces 314
Gasoline Engines 314
Greenhouse Material viii
Land Companies vi
Nursery Stock . . . . . iii, v, vii, viii, 312, 313
Pianos and Organs . . . . . iii, iv
Roofing vii
Rubber Stamps and Engravers . . . . . ix, x
Seeds, Bulbs and Plants . . . . . v, vi
Spraying Machines 312
Steamship Companies . . . . . ii, 313, xi, xii
Typewriters x
Veterinary Remedies ix

Everybody having plants in the house, garden or conservatory desires them to be at their best—healthy and vigorous, abundant in bloom and foliage. ¶ With the knowledge gained by our thirty years' experience in manufacturing Fertilizers, we have prepared in "Watch-em-grow" a combination of plant food elements, mixed with the necessary chemicals, in proper proportions, and in the best forms, to give the maximum results. It is odorless and easily applied. ¶ That you may test the merits of "Watch-em-grow," we will send on receipt of ten cents, to any address in Canada, a package, postpaid, containing a sufficient quantity to fertilize eighteen to twenty plants for two months. Prices for larger quantities quoted on application.

The Standard Fertilizer and Chemical Co.
SMITH'S FALLS, ONT. Limited
Established 1879 Incorporated 1885

Henry's Nurseries

PACIFIC COAST GROWN SEEDS for the farm, garden, lawn or conservatory. Reliable approved varieties at reasonable prices. Each variety tested as to vitality before sending out. Finest collection of Japanese Lilies and Dahlias in Canada for spring planting.

Thousands of Fruit and Ornamental Trees, English Hollies, Greenhouse Plants. Home grown.

No Borers. No Scale. No fumigation to damage stock. No windy agents to annoy you. Buy direct and get trees that grow. Bee Supplies, Spray Pumps and Spraying Material, Cut Flowers, etc. Oldest established nursery on the mainland of British Columbia. Catalogue Free.

M. J. HENRY
3010 Westminster Road - - Vancouver, B.C., Canada

Mention The Canadian Horticulturist when writing

Chilliwack

The Garden of British Columbia

BEST OF
FRUIT LANDS
AT PRICES
REASONABLE

NO IRRIGATION
WRITE FOR OUR
ILLUSTRATED BOOKLET

Cawley & Paisley

CHILLIWACK, B.C.

Mention The Canadian Horticulturist when writing

CHRISTMAS DECORATIONS

HIGHEST QUALITY

HOLLY
Well-berried and
Foliage Perfect

MISTLETOE
Selected Specially
for our Trade

Moss and Paper Wreathing, Bells
Etc.

CHOICE PALMS

RUBBER PLANTS AND ARAUCARIAS
IN VARIOUS SIZES AT
REASONABLE PRICES

ORDER NOW FROM

THE STEELE, BRIGGS SEED CO.
Limited
132 KING ST. EAST, TORONTO

Mention The Canadian Horticulturist when writing

THERE ARE NO IRRIGATION DIFFICULTIES WITH OUR

FRUIT LANDS

Situated between Vernon and Armstrong in the famous Okanagan Valley, one mile from C.P.R. station. Railway with siding runs through the property. Lots front on main road. Excellent water for which there is no charge. Lake and town close and handy. Climate and scenery unsurpassed. Fishing and hunting A 1. Per acre $100, one-third cash, balance 1, 2, 3 years, 6%. You cannot make a better investment. Profits are enormous.

KIRTON ORCHARD COMPANY

317 Portage Avenue, Winnipeg, Man.

Mention The Canadian Horticulturist when writing

The Canadian Horticulturist

Vol. XXX JANUARY, 1907 No. 1

The Future of the Apple in Ontario*

A. McNeill, Chief, Fruit Division, Ottawa

THE future of the apple trade in Ontario rests upon several natural conditions, soil, climate, markets, transportation and the trend of trade, as well as upon the character of the men who are growing the fruit and the character of the men who are handling it. I will also assume that men will do what is for their best interests, although I am perfectly well aware that not infrequently this rule of action is violated. On the whole it would be more correct, perhaps, to say that I am endeavoring to show the lines along which the apple industry should develop rather than the actual development that will take place.

Of the various elements that enter into this problem I propose to select a few, the importance of which has been overlooked, or which are not likely to be handled by others. Some of the most important I will pass over with just a simple reference. Transportation, for instance, is a most important element in connection with the future development of the apple industry. Soil is also another important element. Fortunately here I need say little, inasmuch as there are few parts of Ontario where the soil is unsuitable for the culture of apples. Some parts may be slightly better than others, but on the other hand the conditions are so uniform and the question so local that it may fairly well be omitted in an investigation of this kind.

GEOGRAPHY, TOPOGRAPHY AND VARIETIES

I shall confine myself more particularly to questions of climate and the selection of suitable varieties for local conditions and the trend of trade with special reference to the markets. For the purpose of developing these points, I have drawn a map marking the various portions of it to suit the conditions which I believe prevail with reference to temperature and climate generally. I will use this map for the purpose of drawing your attention to certain physical features that have a most important bearing on the development of apples, a bearing that has been entirely overlooked in the planting of the orchards of Ontario. Nevertheless, by a process of the survival of the fittest, the trend of apple orcharding is shaping itself very nearly as the physical features of the province would dictate. In any case, the development of markets and the distribution of population has proceeded so rapidly within the last quarter of a century that those who planted the orchards 25 years ago can scarcely be blamed if they did not foresee some of the results that were inevitable now that their orchards should be in full bearing.

APPLES AND ALTITUDES

I would first draw attention to the heights of land. This element in the determination of climate is not a striking one in Ontario. Nevertheless, the net results of height above the sea level are just as definite and just as effective as in mountainous districts such as British Columbia. The traveller in British Columbia can stand at the foot of a slope and pick tender flowers, but raising his eyes but a few hundred feet, he can see the whole mountain top covered with snow and, perhaps, even with glaciers that never disappear. The result is brought about solely by the differences in the height between the base of the mountain and its top.

The slopes in Ontario are so gradual that we are not aware of the heights we reach. I would, therefore, play the schoolmaster to the extent of noting that Lake Huron is 575 feet above the sea level, Lake Erie 565, and Lake Ontario 262 feet. Compared with this we have: Chatham, 589 feet, London 805, Brantford 705, Stratford 1,189, Durham 1,687, Walkerton 931, Mount Forest 1,348, Orangeville 1,557, Lindsay 854, Peterboro 649, Ottawa 215, Montreal 47.

FOUR FRUIT DISTRICTS

The accompanying map of Ontario divides the province into four divisions for apple culture. District No. 1 grows all the tender fruits, such as peaches, apricots, dwarf pears of all varieties, tender and all varieties of apples, plums, pears, cherries, etc. This region is specially adapted to early fruits and vegetables, being from ten days to two weeks ahead of the districts surrounding the large markets.

District No. 2 grows excellent winter apples of all varieties to perfection. It is characterized by a large number of comparatively small orchards containing numerous varieties of fruit. Many portions are excellently adapted for plum and pear culture.

District No. 3 is specially adapted for winter apples. There are many large orchards especially on the shore of Lake Ontario. The farmers here are making a specialty of orcharding. A district on the Nottawasaga Bay should be classed with District 3, having large orchards of comparatively few varieties of winter fruit.

In district No. 4 the ordinary winter varieties are not hardy. This district, however, grows Fameuse, McIntosh Red, Wealthy and Wolf River to perfection. The first two are dessert apples that, if properly packed, should command the very highest prices as dessert apples. The midland counties of western Ontario, on account of their altitude, must be classed with district No. 4. In this district the ordinary winter varieties grown in the adjacent counties are not hardy.

The height of land embracing the counties of Dufferin, Wellington, Perth, and Waterloo, renders the winter climate frequently so severe as to make it impossible to grow the tenderer varieties of apple trees. We are, therefore, obliged to put these counties in the same apple district as the northern portion of the province, which I have designated as district No. 4, and which includes the valley of the Ottawa and St. Lawrence Valley, roughly as far as Kingston. For the purpose of the apple industry I need only consider the more favored portions of this district No. 4, where they grow the Fameuse and McIntosh Red, the Wolf River, Duchess and Wealthy. Such varieties as the Spy, Baldwin, Cranberry Pippin, King, etc., are altogether too tender for this

*An address delivered before the recent convention of the Ontario Fruit Growers' Association.

Ranks High

The last issue of THE CANADIAN HORTICULTURIST is most creditable to the publishers. It takes rank high up among the outdoor magazines.—*The Busy Man's Magazine.*

area, so that this district is not considered in the production of what we call winter varieties.

The counties bordering on the north shore of Lake Ontario, together with a small portion of the county of Grey, bordering on Georgian Bay, and one of two townships in the county of Dufferin, designated district No. 3, have that happy medium climate that renders them peculiarly well-fitted for the winter varieties. The temperature is not so severe as to cause serious loss from winter killing, and the summer temperatures not so high as to prematurely ripen these varieties.

The counties bordering on Lake Huron and the second tier of counties north of Lake Erie, named district no. 2, are also admirably suited in climate and soil for the production of winter varieties, but

Map of Ontario showiug Four Divisions for Apple Culture

the orchards of these districts were planted under different conditions that have induced me to place them in a separate class.

We come now to the counties bordering directly on Lake Erie, which I have grouped under district No. 1. This may be called the tender fruit belt of Ontario, where peaches, cherries, tomatoes and all tender fruits are grown with the greatest success. The apple also grows here to perfection. Nevertheless, it is a matter of notoriety that, though the earliest orchards of Canada were planted in this district, and though it made its reputation as an apple growing district long years before the other portions of the province were settled, of late years the industry has fallen into disrepute. Splendid old orchards in perfect health and vigor and bearing a full crop have been chopped down to make way for ordinary grain crops, and even in years of comparative scarcity, as last year and this, thousands of barrels of apples have been allowed to go to waste in orchards in this district. Some of the finest of the apples, if not the very finest exhibited at the recent Ontario Horticultural Exhibition in Toronto, came from this district. Such a condition of affairs calls for some explanation. If the fruit can be grown to perfection, and if orcharding is profitable, why is it that we find this waste of fruit and want of confidence in the apple industry?

CLIMATE NOT FAVORABLE

The explanation is partly a question of climatology and partly an economic question. As a matter of climate, this district No. 1 has a mean annual temperature many degrees higher than districts 3 and 4. The Fameuse apple will be in full bloom in Chatham early in May; the same variety will not be in bloom in Lindsay for two weeks later. The fruit grower in Chatham does not fear serious frost until the first of November, probably until November 10 or 15. The fruit grower north of Lake Ontario is very anxious, indeed, if he has any apples exposed the last week of October. It will thus be seen that the apples north of Lake Ontario begin to grow nearly two weeks later than in the southern parts of Ontario. It will also be noted that in district No. 3 they do not have nearly so high a temperature during the summer months and consequently are nearly a month later in reaching the same degree of maturity as the varieties in district No. 1. In consequence of this, all the common winter varieties, such as the Baldwin, Spy, Russet and King are ripe in district No. 1 early in October, and in the natural order of things are subjected to the warm, genial weather that prevails in this district during the latter part of October. At the end of three weeks of this warm weather the apples are in a condition of maturity when they must go at once into consumption. That is to say, apple operators will not store these varieties, or if owing to very favorable conditions of temperature, they do attempt to store them, the consequence is a very serious loss when they come to be repacked during the winter months. The growers, then, of winter stock in this district are forced to sell so as to go on the market at least before Christmas, and they have not the alternative of accepting this market or the later winter market.

CHEAP APPLES

It might be noted just here that in the apple industry it is always likely that the cheapest apples will be those that must go into consumption during the months of October, November and December. During these months there will always be the fag ends of the high priced early apples as well as the odds and ends of the late winter varieties that for one reason or another have to be forced upon the market. These two sources of supply, together with the large volume of apples that ripen normally at this period, will always make a surplus at least of No. 2 grade at this time. Herein lies the reason for the low prices and for the want of market for the apples grown in district No. 1.

Somewhat different conditions prevail in the district which I have designated No. 2, including the second tier of counties on Lake Erie and the counties bordering on Lake Huron. This district, of course, fades inperceptibly into district No. 1 upon the south, but upon the whole is admirably fitted for growing the winter varieties. In common with district No. 3 it has that happy medium of climate not so severe as to induce winter killing and not so high in temperature as to prematurely ripen the apples. The standard winter varieties are matured normally, so as to meet the temperature approaching the freezing point that prevails in these districts after the first of November. These apples go as it were into a natural cold storage and, if harvested with care and placed at once where they will be protected from the occasional warm days, will be in the best condition to be repacked and shipped for the winter market.

FUTURE FOR EARLY APPLES

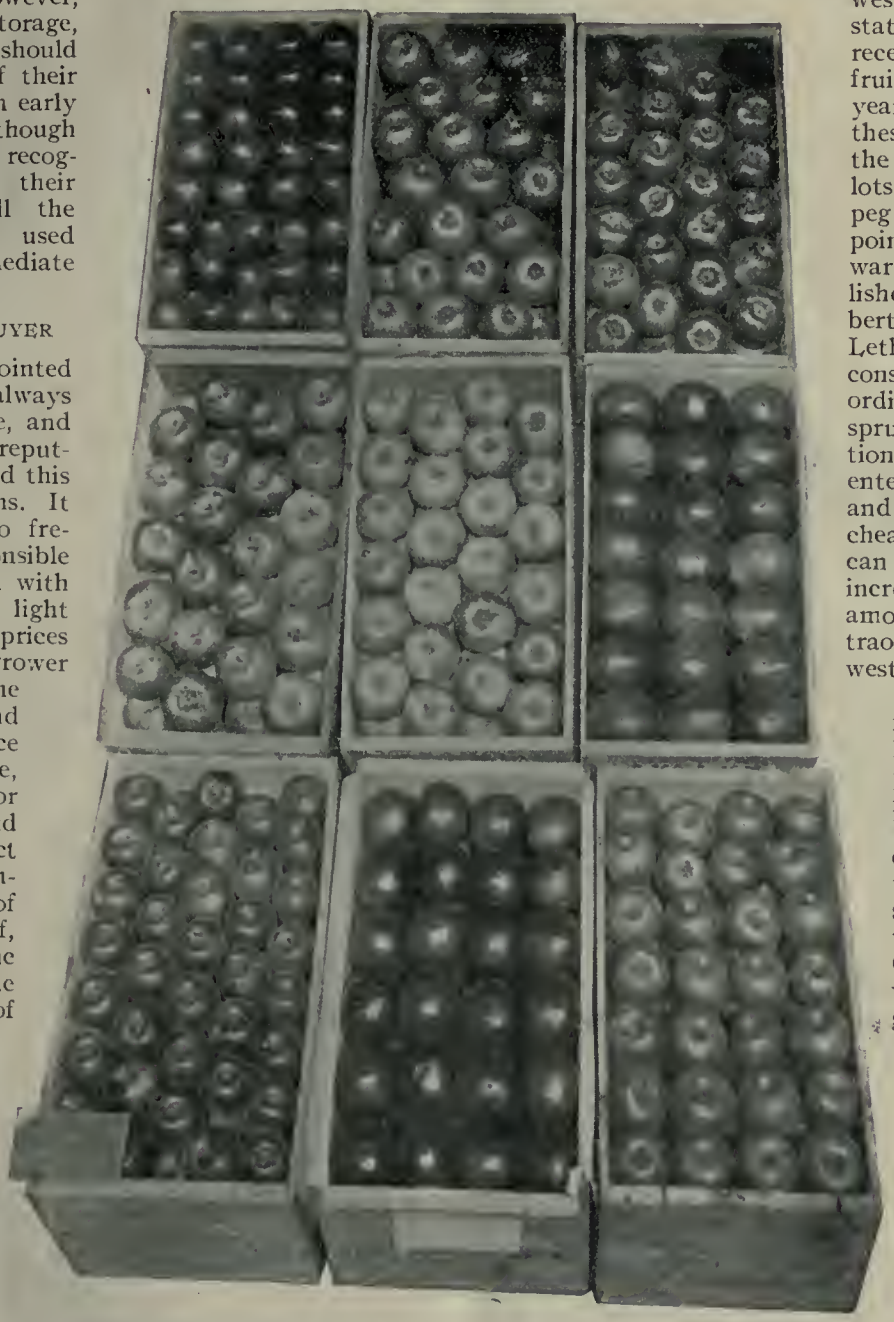
What, then, should be the aim of the orchardist in the counties north of Lake Erie, district No. 1? One thing is certain, they can never compete under natural conditions with other portions of Ontario in the production of winter apples. It is very true that in this respect they have conditions not dissimilar to the orchardists in New York state, and they may make orcharding as successful in New York state by adopting the same devices as have been adopted there, namely, an extensive system of cold storage. If, at some point, or

several points, in this district, cold storage facilities are provided whereby the apples may be packed when they are matured (the last of September or the first of October), and placed in cold storage chambers, where they will be quickly reduced to a temperature near the freezing point, they may, with confidence, then be repacked for the winter trade. Dismissing, however, the question of cold storage, the orchardists here should recognize the defects of their apples and market them early in the season, indeed, though they have not cleary recognized the defects of their apples as keepers; all the apples that have been used have been sold for immediate consumption.

THE IRRESPONSIBLE BUYER

As has already been pointed out, the market is not always a reliable or steady one, and consequently the more reputable dealers have avoided this district in their operations. It has been the prey too frequently of the irresponsible buyer who has come in with his glib tongue and a light purse, and promised prices that induced the apple grower to part with his fruit. The apples were packed and shipped, and if the price realized was a good one, or if the apple operator was so fixed that he could not get out of the district readily, he paid the farmer a part, or the whole, of what was promised. If, on the other hand, the markets were poor, if he made a clean breast of the matter and explained that the markets had gone wrong and he could not pay the promised price, the farmer very quickly realized that he had no recourse.

This, however, is not a necessary condition of affairs. It simply indicates bad business methods, and the remedy here is quite aside from any question of climate, soil, varieties or markets. The question is simply one of organization among the apple growers themselves. This has been demonstrated by the success of one or two cooperative organizations which have been working in this district. I need only to refer you to the success with which the Chatham Fruit Growers' Association is working. Another cooperative organization is working most successfully in Simcoe. Both of these organizations have this year sold all the apples their patrons had at prices much higher than the average prices paid for winter apples in the counties north of Lake Ontario. What has been done at Chatham and Simcoe can be done in Essex and Elgin and other counties constituting this district.



Ontario-Grown Apples Shown at Recent Ontario Horticultural Exhibition

THE WESTERN MARKET

Just here may be a convenient place to discuss the question of markets for early apples. The two most important markets for early apples are the western provinces and Great Britain. The markets of the western provinces are opening so rapidly that few who have not paid special attention to this matter will realize and appreciate the extraordinary growth of late years. The influx is not likely to lessen for many years, but the market for apples cannot be measured by this standard, large as it will be. The great cost of distributing the apples limits the consumption very largely to the cities and towns capable of taking at least carload lots. During the last few years there have been established along the railway lines of the western provinces, hundreds of stations, none of which, until recently, were able to take the fruit in carload lots. Last year and this some dozens of these places have come into the market accepting carload lots. A few years ago Winnipeg was the only distributing point. Now large distributing warehouses have been established at Regina, Prince Albert, Moose Jaw, Calgary, Lethbridge and Edmonton. In consequence of this an extraordinary demand for fruit has sprung up, quite out of proportion to the number of people entering the country last year and this. The comparative cheapness with which the fruit can now be distributed has increased the consumption among the people. The extraordinary prosperity of the west has made it possible for almost everyone to enjoy fruit, which necessarily is high priced even yet compared with the price which is received by the grower. We can look forward, then, confidently to a market there that will readily absorb a very large proportion of all the fruit that Ontario can grow. It is very true that the Ontario grower in the near future will have to meet the competition from the province of British Columbia. This, however, he need not fear. The growers of each province, when all the elements of success are taken into consideration, are upon a comparatively equal footing, and even if this were not the case, the market will likely increase much faster than the production of fruit in both provinces.

(*To be concluded in next issue*)

With the advent of the San Jose Scale into this district, driving the careless unthrifty grower to the wall, and the opening of the great Northwest so rapidly, to say nothing of New Ontario, the prospects were never brighter for success in fruit culture.

Top-Working Unprofitable Fruit Trees

TOP-WORKING orchard trees is the grafting over of old trees or of worthless varieties after they are established in the orchard. It is an important operation in the secondary care of fruit orchards and may be practised on trees of all ages, provided they are strong and healthy.

Varieties that have been planted and found not suited to local and climatic conditions or to the demands of the market may be worked over with some variety of desired merit. Top-working may be useful also for grafting varieties into the tops of self-sterile trees to ensure cross pollination. It may be employed to reform the tops of trees that have been found not true to name. It is the best means for saving time in testing new varieties by top-working them into bearing trees. It is a means of overcoming weak, straggling, and other bad habits in certain varieties. It is also an important factor in reducing the danger of sun-scald by grafting a susceptible sort on a variety that has proved more resistant to the disease. It may be used in some cases to modify insect injuries.

Top-working may, therefore, be used by the fruit grower with advantage in many ways. Chief among the many and the one of most importance in most orchards is the changing of poor varieties for ones of value.

In the case of the peach, top-working is best done by bud-grafting. Budding is a part of the general process of grafting, but differs from grafting proper in that the scion used consists of a single bud instead of a twig comprising one or more buds. The bud may be successfully set in old wood, but to secure more certain results it is necessary to bud on wood of one season's growth. To get this new wood, the main branches should be cut back when the tree is dormant to within one and a half feet of the trunk. The following season a new growth will spring from the stubs, and this may be utilized for the desired purpose. If the growth has been superfluous, only a portion of the new shoots need be budded. It is advisable, however, to bud more than eventually will be required, so as to ensure a sufficient number of perfect unions. All unions in excess of the desired number which is usually four or five, may be removed when growth starts the following spring.

Apple trees are usually top-worked by means of the cleft graft. As a rule, it is better to top-work each year only a portion of the top of old trees so as not to be too severe. Cut the branches of an inch or an inch and a half in diameter off squarely, making a clean cut with no ragged edges. Split these in the centre and insert the scions, usually two, one on either side, so that the cambium or green layer just beneath the bark comes in contact with the cambium of the stock. Coat the wounds with grafting wax or wax bandages so as to exclude the air and the spores of disease and to allow of rapid healing. Cleft grafting is not difficult in the hands of a person of ordinary care and intelligence.

Fighting Plum Curculio

Among the insects which attack the plum orchard the curculio is the most destructive. Many methods of combatting this insect have been tried, but few of them can be claimed to be effective.

Regarding successful treatment, Mr. F. G. Stewart, of Homer, wrote THE HORTICULTURIST as follows: "Last season I used altogether arsenate of lead for plums, and I do not find more than two plums cut by the curculio on a tree. It is more expensive than Paris green. The latter costs about four cents a barrel, while it takes three pounds of the lead at 17 cts. a pound, or 51 cts. worth for a barrel. But what would that matter on 50 trees, when it saves the crop so well. Three baskets of good plums will more than pay the difference. Another point in favor of the lead arsenate is that it does not wash off as readily as does Paris green."

The Gravenstein

Ralph S. Eaton, Kentville, Nova Scotia

A better apple might have been made than the Gravenstein, but few Nova Scotians will admit that a better one exists, either as a dessert apple or for cooking. Like much highly bred stock, however, the tree and fruit has some weak or tender points. The tree has been more susceptible to so-called "collar rot" than any other variety, and some growers are hesitating to include it in their new plantings. The fruit is susceptible also to black spot, and, as it is a large and early maturing variety, its rapid expansion of pulp and skin causes cracks where the roots of the spot have their hold.

Previous to five years ago, the Gravenstein brought more money to Nova Scotia growers than any other variety. Since then the Baldwin and perhaps Ribston have led. But it is too fine an apple to give up growing, and there is hardly sufficient reason for doing so. The "collar rot" was due probably to some special climatic conditions of the winter of 1900, which may not recur for many years. There is ample proof that with thorough spraying the fruit can be grown beautifully clean. The tree requires very little pruning and is a beautiful, symmetrical grower. Though the first home of the Gravenstein was in

Typical Gravenstein Tree, Pruned

Germany, Nova Scotians feel that they can surpass the German product.

An Effective Windbreak

This windbreak is on the farm of Mr. T. A. Scott, of Meyersburg, Ont., who writes to THE CANADIAN HORTICULTURIST as follows: "It has paid its cost over and over again and I would not be without it. It saves 25 to 50 per cent. of my apples each year. It is about 25 feet distant from the nearest row of trees, so it does not shade them. In most orchards the air circulates too freely, more especially in a winter like 1904, when many farmers lost a great number of both young and full grown trees by frost. Mine came through safe with the exception of one or two at the end of

A Shelter Belt of Spruce Trees

the break. I would not think of planting an orchard without a break on the west and north side, if not already protected by a hill, and if I had an orchard already grown I would lose no time in planting a break. Spruce makes the best.

The Strawberry and Its Culture*

Wm. F. W. Fisher, Burlington, Ontario.

THE strawberry is more cosmopolitan in its adaptation to soil, climate and conditions, as well as palates, than any other fruit. It grows and flourishes in the sunny south. It is found smiling its welcome in the early spring on the prairies of the far north, and at all points between it grows or may be grown.

It was feared by many that the importation of strawberries from the United States would result in weakening the appetite of consumers and lowering the price of the home-grown article. The history of demand and average prices for the past 10 years shows a contrary effect. With the increase of importations and the trebling of the acreage in home-grown berries, the demand and price have kept full pace.

CULTIVATION

The old saying that in order to properly train a child one should have begun with its grandmother, applies with full force to the cultivation of the strawberry. If land has been liberally fertilized and tilled in such a manner as to keep down all weeds for two or three seasons previously to its being planted, half the battle has been fought and won. With ordinary intelligence applied to later operations, success is insured.

While the strawberry will succeed on a variety of soils, the ideal one is a rich, sandy loam with a quicksand sub-soil, not too near the surface. Having selected such a soil, it should be well fertilized and fall plowed. In spring, cultivation should begin early in order to retain moisture and, in cases where the soil is heavy, to keep it from becoming hard. When ready to plant in spring plow deeply, harrow and then roll firmly.

PLANTING

The distance between the rows and between the plants in the row depend somewhat on personal opinion and largely on the habits of the variety. I prefer a distance of three feet between the rows and from 15 to 24 inches between the plants in the row.

Probably the most common method of planting is for one man to carry a spade in one hand and a basket of plants in the other, while another man or boy puts the plants in the holes made by the spade and each presses a foot through the earth at the roots of the plants as they pass on. In this manner an active man and a boy can plant about one-half an acre a day.

As soon as the planting is over, the soil should be well cultivated and hoed to retain moisture and to prevent the air from getting at any roots that have not been entirely covered. Cultivation should be continued at intervals of about once a week for the first two months. Early runners should be turned into the rows as they form the strongest plants. The rows should not be allowed to become matted by plants that set late. Some of our most successful growers allow each parent plant to set but two young plants on either side. This system, called the "hedge row," is not generally practised, nor is it conceded to be always practicable.

When the frosts of December come, the rows should be mulched in such a way as to protect the plants from the severity of the winter. The following spring, cultivation is again necessary, especially if the plantation is to be maintained for a second year's picking.

Plan to have a Field of Strawberries like this Next Year

PICKING AND SELLING

To get the berries picked carefully, regularly and promptly, is the knotty part of the problem. Provision should be made a season in advance for a supply of pickers. These require considerable tact in managing. Picking is done by piecework at the usual rate of one cent a box. In addition, a premium of some kind might be given those pickers who, by skill and neatness, bring in their berries in the most attractive and saleable condition.

Marketing is the next feature in order. The success or failure of all our efforts up to this stage depends, to a greater or less degree, on the services rendered by the transportation companies, rather than on the prices charged. When the crates are thrown three or four feet by a stupid, careless expressman, and landed in one of the old-fashioned, stuffy ovens (which are still designated express cars), or when the trains run into market three or four hours late, the result is quite different to that obtained when the crates are properly handled, deposited in a well-ventilated car and delivered at their destination on scheduled time.

The distribution of the crop is one of the most important factors, and we think the ordinary grower would do well if he would confine shipments on commission to the larger centres, and allow buyers at local points to supply smaller markets. If all the mouths in the Dominion are given access to a full allowance of strawberries, we need not fear a glut in future markets.

I have outlined a system involving a large amount of labor, care and expense. What result should the average grower expect from such a system, fairly carried out? Place the average crop at 7,500 quarts an acre, the average price at six cents at railway station, making thus the sum of $450 as the gross receipts for an acre. From this, deduct the following charges: Plants required, $25; cultivation, $25; fertilizers, $35; rent, $5; picking, $75; packages, $75; and packing and delivery, $25. This makes a total of $275 and leaves a net profit of $175, a sum which every good cultivator may expect to exceed and which, also, compares favorably with other branches of fruit growing.

I do general pruning early in the spring and then go over the trees again after the leaves come out to remove diseased limbs, which could not be noticed before the buds open.—Harry Dempsey, Rednersville.

*A portion of a paper read before the recent convention of the Ontario Fruit Growers' Association.

Interest the Children in Horticulture

THE feeling is unanimous that children interested in horticulture play an important part in both home and civic improvement. The work of horticultural societies in various towns and cities in Ontario has demonstrated the value of getting the children enthusiastic. Societies that have undertaken this work are so pleased with the results that they pronounce it a line of work well worth continuing. This was evidenced at the recent convention of the Ontario Horticultural Exhibition held in Toronto, Nov. 9, when an interesting discussion on the subject took place.

The discussion was led by Mr. J. Thos. Murphy, secretary of the Simcoe Horticultural Society, Simcoe, Ont., who said in part: "The main thought that we have in interesting school children in horticulture is to improve the appearance of our town by beautifying it with lawns and gardens. The course we pursue is to buy quantities of seeds and give them to the school teachers of the public school, who re-distribute them to the pupils. We buy the best seeds that can be procured from the best growers. The first year we spent only $5 for seeds, but that was sufficient to enable us to hold a little exhibition in a building near the schoolhouse. In the afternoon the flowers were placed and judged while the children were in school. By the time school was out, the exhibition was ready for inspection by the children. In the evening, the band furnished music and the public turned out to see the show.

"Last year, 1905, the amount paid for seeds was increased as we were encouraged to continue the work. The children took an interest in it. Many little tots became as anxious about their productions as old growers that exhibit at the fairs of the horticultural society. We gave about $10 worth of seeds. The previous year's program for judging and amusement was followed except that a plate was placed at the door for contributions from the public. From this latter source, $15.75 was realized. After paying the expenses of the fair, which amounted to only $5.75, we got back the $10 that originally was paid for the seeds. In white asters, there were 21 entries in the junior division; in blue or purple, 23; and in mixed colors, 20. In the class for nasturtiums there were 21 entries. The total entries in all the classes by school children amounted to nearly 500. The display was a creditable one.

"This year we suffered from drought for six weeks or more. The exhibition was not as good as the one last year, but there were quite a large number of entries. They totalled about 400. The children are interested more than ever. We again realized $15 at the door by contributions.

"Interesting children in horticulture in our town is creating a wholesome rivalry among them; it is stimulating a desire to produce plants and flowers a little better than their neighbors. We find also that the gardens in town are improving in appearance, particularly the lawns and grounds in front of the dwellings. During the past two years the appearance of the town in general has been improved."

THE WORK IN OTTAWA

In a brief talk on the character of the work in Ottawa, Mr. R. B. Whyte said: "There is no doubt about the value of the work. It has a marked influence on the appearance of a town or city. To get results in civic and home improvement, we must first reach the individual. We cannot do better than to begin with the young child. If you can get a boy or girl really interested in growing flowers, you are doing him or her a great benefit. There is nothing that tends more to keep a boy or girl out of mischief, out of bad habits and bad company, than the care of a garden of his own and one in which an interest is taken. With that object in view, I began four years ago, through our horticultural society, to distribute seed to a limited number of school children. In a large city, like Ottawa, it is practically impossible financially to give seeds to all the children in the schools. Besides, there are many children who have not the facilities with which to care for and grow them.

"The first year I started with aster seeds. My method was to give three packages of aster seeds, white, pink and mixed, to 10 children in each class of 14 schools in the city. The teacher had the privilege of choosing those who were to get the seeds. To each teacher I gave an order on a seedsman that I had selected to supply the seeds. I gave them, also, 10 orders to be given to the children most likely to carry out the purpose of the distribution. With each order I gave three entry tickets, numbered, with instructions that they should be attached to the exhibit. The teachers supplied me with a record of the names of those who got tickets and what they were for.

"For the purpose of instructing the children in the best way to grow the flowers, I printed a little bulletin and I made it as simple as possible. My intention, also, was to visit all the children during the summer and see how they were getting on, and to help them with what advice I could. I managed to visit a number of them. In spite of the instructions given, many of them covered the seeds too deeply. When exhibition time came, only 40% of the children who received seeds were able to make entries. The quality of the flowers shown was excellent. In every respect, they were equal to and, in many cases, superior to those grown by our regular exhibitors.

"The second year sweet peas were distributed instead of asters, as they are easier to grow. The change was gratifying. While only the same percentage of children exhibited, the show was a pretty one. The results of that year's work showed that there were many children disappointed because, having no gardens, they were not in a position to grow flowers.

"The next year a division was made. Ten children got poppy seeds (seeds that I grew myself) and a like number were given geranium plants. The plants were distributed in four-inch pots, most of them in bloom and of the same variety. Prizes were offered for these at the September show. About the same proportion of children succeeded with the geraniums as with the seeds.

"During the fourth year, 1906, Phlox Drummondii and begonias were grown. The seed was divided in two divisions. The proportion of children who were successful remained about the same as in past years.

"One of the difficulties that face a city organization of this kind in encouraging school work, is the fact that the holidays interfere. A large percentage of the children who attend school leave the city for six or eight weeks in the summer time. It is difficult to get more than 30% or 40% to complete the experiment. Our success, however, has been gratifying both to Mayor Ellis and myself, who have carried it on for the past two years at our expense. Fine plants were shown at the exhibition. The flowers have been equal to those shown by more experienced exhibitors.

"Every year I issued a bulletin. It is no use giving seeds without instructions. Verbal instructions practically are of no use. A printed bulletin is necessary. It should tell how to sow the seeds and grow the plants, how to prepare them for exhibition and other information necessary to the child's success.

"A valuable feature of our work has been the giving of a number of gladiolus bulbs in addition to the money prizes, which never were very large. The highest money prize was $1.50, and the lowest 25 cents. Each exhibitor that won a first prize this year got 60 bulbs; each second, 50; each third, 40; and so on, down.

"Two years ago, I gave bulbs for the first time. I offered prizes for flowers

grown from those bulbs the following year. The scheme was a success. The particular value of it is that it keeps up the continuity of interest. The same child is had for at least two years. Naturally, it is the older children in the school who get the seeds. Usually when they have advanced to a higher class we lose them; but, if you give them prizes in bulbs, you can hold them for two years or more. The children are pleased with the bulbs. There is no expense attached to the giving of them, as I grow them myself."

School Gardens Incite in Children a Love for Plants and Flowers

RESULTS IN BRANTFORD

The nature of the work in Brantford was outlined by Mr. J. Walter Brooks, secretary of the Brantford Horticultural Society, as follows: "Our society was organized in 1868. Under the old plan of carrying out the show for flowers, fruits and vegetables, the society was a failure. In 1903 we failed. In 1904 we held no show. We got through the year as well as we could and managed to save a little money with which to start the following spring. The next year we bought seeds and gave them to the children to grow for competition. The prizes were given in plants, not in money.

"The past spring (1906) we distributed 8,277 packages of flower seed to 1,500 children of the public and separate schools. Each child received five packages of different seeds. We gave asters, scabiosa, zinnia, verbena, and nasturtium. Our exhibition was held on Sept. 14. We had 493 entries and gave as prizes 127 plants, including araucaria, palms, rubber plants, ferns and 600 hyacinths. We gave a bulb to each pupil that made an entry, so that all got something. There were about 1,500 people at the show, all enthusiastic.

"The seed was purchased wholesale and we put them up in packages ourselves. The cost amounted to a trifle over one-half a cent a package, including the printing. On the envelopes were printed instructions respecting the sowing and care of the seeds.

"We succeeded in getting the city authorities to plant bulbs in the city parks. The city council has been asked to fix up and plant a piece of land belonging to Greenwood Cemetery with shrubs and trees for nature study, and to have them labelled with both common and botanical names. The city cannot do this at present. Special legislation is necessary. We are going to try again, and probably something will be done. The city made some improvements, but not all that we desired."

A Model Schoolhouse and Grounds

The Rittenhouse school at Jordan Harbor, Ont., is a model for others to follow. The grounds are beautifully planned and planted. Adjoining the grounds shown in the cut is a large plot used as a garden, in which the children are required to grow vegetables and flowers. The location of this school is adjacent to the new experimental fruit and vegetable station in the Niagara district.

Catalpa Trees for Posts

Is the catalpa a serviceable tree for fence posts? Can it be grown in Ontario with success? How is it propagated?—R. C., St. David's, Ont.

The catalpa makes a durable post. The best species for the purpose, and the only one that is really hardy in Ontario, is *Catalpa speciosa*. The trees are propagated by seeds, either at home or in the commercial nursery. Buying seedlings from nurserymen is the most satisfactory plan.

Fertilizing House Plants

LACK of sufficient fertility in the soil is the cause of many house plants dying. In most cases the potting soil was not well prepared. With a soil of proper composition and judiciously watered afterwards, most growers claim that very little, if any, fertilizer is required. In fact, it is claimed by many that plants are lost because too much plant food was given. Until the last few years liquid manure was the chief fertilizer used, and perhaps fewer plants were damaged as long as that was the case.

The introduction of concentrated horticultural manures and plant foods which are more easily applied and less objectionable as far as appearance and odor are concerned, has resulted in many discarding the liquid manure. Among the valuable fertilizers commonly used are Arnott's Concentrated Horticultural Manures, Steele-Briggs' Plant Food and Rennie's Plant Food.

In discussing this subject with THE HORTICULTURIST, Mr. E. F. Collins, of Toronto, said: "These concentrated plant foods are much more easily applied, are cleaner to handle, and contain more of the fertilizing elements required by the plant than does the liquid manure frequently used. I have used Arnott's Horticultural Manure, and know that it is good for strong plants. There is, however, no use in applying such foods to sickly plants. Most amateurs make this mistake. They imagine that if a plant is weak it needs more fertilizer. Instead, the plant needs nursing. It does not need fertilizer any more than a sick man needs a beefsteak. It would do the plant more good to repot it, to wash and cut the ends off the roots and then to reset in clean, sweet soil. It should be kept pretty dry for a month or six weeks, and after that it should have regained its former thriftiness.

"In adding fertilizer it should be given in small doses. I prefer a small application twice a week to a larger one only once a week. For palms, ferns and healthy, well-rooted plants, half a teaspoonful in a 12 quart can of water once a week gives good results. Each plant should get a thorough watering, care being taken that none goes on the foliage."

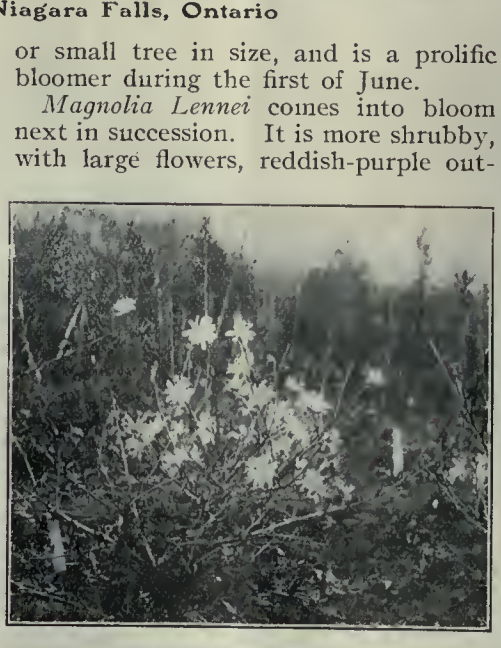
Magnolias in Queen Victoria Park

Roderick Cameron, Niagara Falls, Ontario

THE Star-flowered Magnolia, *Magnolia stellata*, should be planted more extensively in this and similar localities. It is an early bloomer. The flowers are pure white and semi-double, numerous and fragrant. The plants often begin to bloom when but two feet high, and they never grow beyond the size of a medium-sized shrub, very bushy and short jointed, a feature much desired in all shrubs. I am satisfied that this variety is the hardiest of the number grown here, but it should be planted where the morning sun would not strike it. It flowers during the first week in May, and is, therefore, subject to late frosts. The sun being kept from it early in the morning will save the flowers from injury, if they are not frozen too hard.

It is said that magnolias are hard to transplant successfully, particularly if of medium to large size. I have found no trouble with them if they are well trimmed back and planted in deep, damp soil. I have one transplanted after flowering for eight years. Some of the leading branches died back beyond where they were cut; but the plants bloomed the same season freely. It is *Magnolia Soulangeana*, one of the hardiest and best, and it blooms soon after the aforementioned. The flowers are white with some purple on the outside of the petals. It grows to a large shrub or small tree in size, and is a prolific bloomer during the first of June.

Magnolia Lennei comes into bloom next in succession. It is more shrubby, with large flowers, reddish-purple outside, and more showy than the preceding varieties. Perhaps it is not quite so hardy.



Star-flowered Magnolia

Immediately after this one, the Umbrella Tree, *Magnolia tripetala*, comes into bloom. It grows here to a height of 35 feet, making a magnificent tree, with leaves about 18 inches to two feet long. This species produces flowers about 10 inches across, pure white, with a pleasant odor at a distance, but rather heavy close by. It blooms from the middle to the end of June. The cone-like fruit produced by this variety is very beautiful towards fall, being of a bright pinkish-red color, and about five inches long by three in diameter.

Following the Umbrella Tree in bloom comes the sweetest of them all, the Sweet Swamp White Bay, *Magnolia glauca*, by some called the Beaver Tree. This is a very attractive shrub or small tree, evergreen in the south, but deciduous here. The flowers are milk white, globose, very fragrant and pleasant, about three inches across. They are not produced all at once like the foregoing, this one blooming during the first two weeks in July. The leaves are light green above and purplish-white on the under side—wherefore its name, glauca.

There are several other varieties of magnolia grown in Victoria Park, but these are the best and hardiest blooming in succession as named. The magnolia and tulip trees should not be planted in the fall; better plant when the ground works well in the spring. They do best on deep, damp, peaty soil; but will succeed well on a sandy loam. All the magnolias are magnificent plants, producing showy blooms in abundance. But, independent of the blooms, they should be grown if for nothing else than their foliage.

The Mortality of Trees

There are trees living to-day that are believed to be hundreds, and, perhaps, thousands of years old, and they show no signs of decay. From the theoretical view-point, there is no reason why the life of trees should cease; they should taste of immortality, as each successive year sees the renewal of organs whereby life is maintained and also the multiplication of roots and leaf shoots to furnish nourishment. Practically, however, death is as sure to the tree as it is to the animal kingdom. According to its own internal organism, a tree could go on living forever; but there are external conditions that bring life to a close.

A tree is dependent for its food supply mainly on the soil in which it stands. If this soil is sterile, the tree will starve to death. The ravages of insects also bring it to an untimely end; caterpillars destroy its leaves, beetles penetrate and kill the wood. Fungus diseases comprise other mortal factors. The air is laden with germs which enter into the tree in every exposed crevice, and perform their deadly work. The elixir of life for the tree is in the destruction of insects, the annihilation of disease and the maintenance of fertility in the soil. With these conditions, trees might live almost forever.

The Embellishment of Home Grounds

C. Ernest Woolverton, Landscape Designer, Grimsby, Ontario

TO those who have grounds of their own, the subject of their improvement for the most beautiful effect should be one of the greatest interest.

Mr. C. Ernest Woolverton

The true artistic features of the rooms of a house are not brought out until they are properly furnished. So also the lawn must be furnished in order to bring it into true relationship to the house.

Few people seem to appreciate the true beauty that lies within an open green sward, but if they were to go to the best art museums in the world and study the finest landscape pictures that the most celebrated artists can produce, they would find that the very heart of the landscape picture lies within this tender green space. This, therefore, places the lawn next in importance to the house, as the home should nestle down in the heart of the picture.

It is, then, around and about the house that the true value of the open lawn is apparent. It lends dignity and at the same time gives the house its true setting. Shrubs and flower-beds scattered about would be sure to mar the artistic effect which the open lawn gives and should, therefore, be confined to the boundaries, grouped in the corners or in turns of roadways. By so doing, the framework of the picture is constructed.

No hard and fast rules can be given for the planting of trees and shrubs. Every place requires a different treatment and this treatment must be governed by its condition and location. For instance, a small park in a city square would be best suited by an architectural design, because its surroundings are of a formal nature; whereas, a gentleman's country home would, in most instances, call for a natural design to harmonize with its surroundings. Where the natural style is followed, however, the following principles should be observed: The lawn should be kept open; walks and roads, where possible, should be laid out in curved lines; trees and shrubs should be grouped and not placed in straight rows; the buildings should be united to the grounds by the use of shrubbery planted at the base. Climbers also aid wonderfully in bringing into closest harmony the house with the grounds.

Very picturesque effects can be produced, even on small grounds, by strictly following out the landscape idea. The illustration shows a section of a small lawn, about 100 feet deep, which has been laid out in the natural style. The trees and shrubs are so arranged as to form points and bays of green. In the depth of the bays and in front of the shrubbery are planted hardy flowers. No better place can be found than that to plant hardy perennial flowers, as the dark background of foliage sets them off to a wonderful advantage.

This section of the lawn was planted so as to give the most beautiful effect as seen from the house. Here you look right into the recesses of the bays, which give the lawn the appearance of having much greater depth than it really has. This effect can be heightened by planting blue flowers in the innermost depths of the bays, as blue always lends distance to a scene.

When planting the border do not make the mistake of planting one little flower by itself, to be neglected and unnoticed, but plant in bold masses. The effect is much more striking and beautiful. Be careful, also, about the colors. Some colors are always at war with one another, and unless they are blended off they will continue to quarrel all summer. Yellow and red, for instance, would never look well together; they should at least have an intermediate color such as bronze, but it is best to keep them well apart. Use plenty of white, as it is the great harmonizer.

A lawn planted as the illustration suggests, and, of course, with the same idea continued on the rest of the grounds, would have never-ending attractions. By a good selection of shrubs and flowers, bloom could be had the entire season. As one moves about the place, he is continually greeted by new surprises, because the scene is continually changing. In fact, the same objects viewed from different positions appear altogether changed because new settings are given them.

How much more beautiful and homelike is a lawn laid out in this simple and natural way than one geometrically divided into so many parts, all brilliant and aglow with showy beds of geraniums and gaudy coleuses and acalyphus, showing perhaps the day of the week or some other extraordinary and unnatural figure! Pattern bedding does not belong to the architectural ideal, nor, indeed, does it belong to any system of landscape gardening. The architectural style suits many places that the natural would not, but, until pattern bedding with all its oddities and monstrosities is completely forsaken, landscape gardening cannot be spoken of as a fine art.

An open Lawn with Trees and Shrubs Grouped on Border is Effective.

Amaryllis bulbs that have been semi-dormant will soon show signs of growth. When this occurs pot them at once in fairly rich loamy soil.

If new chrysanthemum plants are required, do not pinch off the young growth. When three or four inches in length, cut them off below a leaf joint and insert the cuttings in sharp sand. Keep them in a shady spot where the temperature is about 60 degrees. When rooted pot them singly into small pots. Re-pot when necessary.

Timely Topics for the Amateur Gardener

JANUARY is the half way point between last year's garden and the garden that is to be. You can have a better garden than ever next summer by planning now. In devising improvements, if you have a lawn, or intend to make one, bear in mind that it is equally as important to the general appearance of the home as flower beds and borders, or the trees and shrubs. Some people think it is of even more importance, and like to have their places entirely green without any color to relieve them. Others give their undivided attention to the flower-borders. A few think trees and shrubs are all that is wanted.

Draw a diagram of the home grounds to scale. Don't say "It's too much trouble." It's not, if you approach the work in the right spirit. When you draw the plan, have in mind the effect that the proposed planting will produce in after years.

The home grounds should be modelled after Nature. Freedom from formality is best, but not a copy of Nature in her wildest moods. A lawn dotted with plants and trees in a haphazard, in artistic manner is not desirable, nor is it well to plan a set design drawn according to Euclid, nor are forest conditions what we want, or a tangled wild wood—we should plan a scheme resembling natural conditions, sensibly arranged.

Plan to place the trees and shrubs mostly in groups, seldom alone. Maintain an open expanse of green, and an open outlook. The junctions of the roads and walks should be planted with shrubs. When the driveways curve, make the curve appear necessary by judicious planting. Arrange the plan so as to beautify waste places. Don't forget the value of planting trees, not only for ornamentation, but also for comfort and protection.

PLANNING THE KITCHEN GARDEN

Every home should have a kitchen garden. You get better things than money can buy—fresher vegetables, better varieties. At home, one can select the varieties that stand for quality, not those that are grown for their ability to keep or to ship long distances.

Measure accurately the length and breadth of the plot of ground that you intend to devote to the growing of vegetables. Make a diagram of it. Then decide which way the rows should run. Some plants, like corn, potatoes and curcurbits require more space than others. On the diagram, draw a line for every single row that is to be planted and name each crop. In parenthesis, immediately below the name of crop that it is to follow, place the name of each succession crop. A diagram of this kind planned now will be of much value when planting time comes.

THE GROWING OF HOUSE BULBS

If you took the advice given in our lawn and garden notes for September and October, you will now have a stock of bulbs in pots for bloom during the winter months. The bulbs will flower profusely if given half a chance. Failures are due to improper care and to inexperience on the part of the grower. The most common fault is in the matter of irregularity in temperature and in watering. Bulbs will not do well in a temperature that is too warm in the day time and too cold at night. The temperature should be more uniform. The soil in the pots should not be allowed to become too dry. Water as often as necessary to keep moist.

THE WINDOW GARDEN

Window plants are susceptible to cold drafts of zero weather. On cold nights place sheets of newspaper or similar material between the plants and the window.

Keep as moist a temperature as possible around the plants. Spray or syringe the foliage on fine, sunny days. When possible ventilate the room on warm days. This may be done by lowering the top sash of the window and thereby avoiding the entrance of direct drafts on the plants.

FLOWERS FOR EASTER

With the exercise of a little care and intelligence, the amateur may force flowers for Easter with success. Among the plants that are useful to grow for this purpose are hortensia, the greenhouse spiræa and the freesia. Do not forget that the spiræa must be kept constantly moist. Buy the roots at once, and pot them. In the course of five weeks they may be brought into the warmth. The hydrangea needs similar treatment. Both of these plants require from 10 to 12 weeks to come into flower from the time they start to grow.

The Cultivation of Hardy Flowering Shrubs

John Walsh, Montreal, Quebec

THE cultivation of hardy, flowering shrubs is worth the serious thought of those interested in that line of horticulture. This branch of floriculture has advanced in equal proportions with any other. The change that has taken place within the last 30 years is immense. At that time the number of varieties was very limited, but now many enterprising nurserymen have added considerably to the list of hardy shrubs, until there is an almost unlimited list at our disposal.

Before considering the use of deciduous shrubs for planting, let me urge on all planters, and on every gardener, the necessity of securing stock from some reliable nurseryman who has the reputation of furnishing good, clean, healthy stock, true to name. Otherwise all the work will go for naught. I have seen many failures in this line through purchasing from unreliable firms who send out stock regardless of its fitness to stand the freezing and thawing they are subjected to in this ever-changing climate. The nurseryman will be in strong evidence this spring, because the winter has been so changeable and so mild. Hardy stuff is bound to suffer from so many extreme changes. In my garden I had to gather snow to cover the roots that were exposed to the severe frost—a thing I never had to do before during my long experience in this country.

In starting shrubs I would urge on planters the necessity of beginning in the right way. The ground should be prepared thoroughly. Don't dig a hole half big enough and cram the roots into it. Dig out all the old soil to the depth of at least 16 inches, leaving a little to spare, rather than make a hole too small. Instead of using the old sour soil, it is better to pay a carter a fair price for good rotten turf that has been stacked up for at least one year. With the addition of a little manure, success is assured.

It may be necessary in some locations to use drainage. In the case of a low, wet place a layer of broken bricks or slate should be put in the bottom. This will prevent the roots from entering the cold, wet soil.

There are several methods of planting, either singly or in groups. The most popular way lately has been in zigzag borders. When this method is adopted a nice effect is produced. It is especially suitable for covering a fence or other unsightly objects. In this system the shrubs can be graded according to the height they grow. The following is a list of the newest and best

varieties according to their season of blooming: Amygdalus, Flowering Almond—alba and rosea are both beautiful shrubs, the first to bloom. Spiræa chamædrifolia, beautiful panicles of pure white flowers. It comes in one week earlier than Van Houttii, and is just as pretty. Spiræa arguta multiflora, with a wealth of pure white flowers, giving the plant the aspect, in

A Fine Specimen of Hydrangea Paniculata Grandiflora

Taken when in bloom last September on the grounds of Dr. A. Harkness, Lancaster, Ont.

the distance, of being covered with snow. Spiræa Van Houttii, too well known to need any description. Spiræa Thunbergii, a very useful plant, noted for its dwarf habit; suits well with its companion, Anthony Waterer, and Bumalda.

In Philadelphus syringas there is another study. Syringa avalanche, branches five to six feet high, bending to the ground with their load of sweet-scented flowers. Bouquet Blanck—Very floriferous, with long branches of double or semi-double flowers of medium size, making a compact bouquet; one of the newest syringas. Fantaise—Another new variety, with pure white flowers, rosy centre, very fragrant. Globe de Neige—A plant of bushy habit, enormous flowers of the purest white, branches arched and bent by the weight of the flowers. Perle Blanck—A bushy shrub with an abundance of large flowers, measuring two to two and one-half inches in diameter, of free flowering habit. Syringa rosea—A compact bush, flowers three inches in diameter; a double variety. There are also the older varieties, such as grandiflora and coronarius. The Golden Syringa, too, makes a compact bush, with its yellow foliage in early spring.

Lonicera Morrowsi is one of the newest bush honeysuckles of merit. It is of spreading habit, and covered with dark purple berries. Lonicera Alberta is one that cannot be too strongly recommended. It has spreading habit, is suitable for covering banks, and is a free bloomer, with flowers a light purple.

Rhus cotinus rubra, Smoke Tree—an improvement on the old well-known variety, Viburnum tomentosum, and much superior to the older varieties of Snow Balls. Weigela, Eva Ritka, is another candidate for honors in this class. It is a dwarf grower, holds the bloom late in the season.

To enumerate all the varieties in each class would fill a volume. I have simply given a list of the latest and best varieties of the different species. However, there are one or two older ones that have stood the test, namely, Hydrangea paniculata grandiflora, one of the best late flowering shrubs in cultivation. Viburnum opulus and V. plicatum, although not perfectly hardy, are excellent specimens for forcing.

A most interesting class of plants is the French lilacs. Some years ago my employer purchased a dozen of the latest varieties then known, and planted them at his farm. Last June I was out to see them, and they are simply grand. They were nearly all in bloom and were a sight worth seeing. A few of the best of them are: Count de Rerchone, rose color; Japonica, a very late one; Villosa, rosy pink; President Loubet, one of the best and darkest; Pasteur, another dark red one; Affinnes, one of the earliest to bloom, at least two weeks ahead of the others, pure white flowers; Mme. Lemoine, double white, fine for forcing; Mme. Casimer Perier is also a fine one.

All authorities agree that the proper time to prune shrubs is just after flowering time. With young shrubs very little of this work is needed, at least for some time. The straggling shoots should be cut back to give the bush a proper shape. If the other details are attended to carefully, nature will do the rest.

Bloom in January

The extremely mild winter of last year was productive of abnormal developments in the Niagara peninsula. On January 21 in Queen Victoria Park, at Niagara Falls, Ont., frogs were croaking in the ponds, toads were hopping about catching mosquitoes, butterflies, bees and wasps were flying about, pansies were in full bloom, while evergreen shrubs dared to burst forth into blossom.

A photograph of a handsome bunch of flowers of Black Hellebore, or Christmas Rose, *Helleborus niger*, was sent to THE CANADIAN HORTICULTURIST by Mr. Roderick Cameron. The flowers, two to two and a half inches in diameter, were

A Christmas Rose

pure white but soon turned pink and then green. The stems were short. The leaves were evergreen and resembled the leaves of the peony.

No flower surpasses Centaurea imperialis. Each plant produces flowers on long wiry stems. They are exceedingly graceful for cutting as well as for corsage wearing. They grow like weeds and are superior to carnations.

Practical Plant Breeding*

H. H. Groff, Simcoe, Ontario

THERE are two classes of plant breeders, both of which are doing good work of more or less value from the scientific and economic viewpoint, in the interest of advanced knowledge and our advancing civilization. The first is the breeder who works for the purpose of proving his theories, and who by a limited number of recorded crosses is able to place the simple analysis of his investigations in presentable form for educative purposes. The second, or the breeder for practical results, cannot do this without placing limitations upon his activity, which means his experience and success, as it is only the man who makes many crosses who may hope to approach even the border of a field of limitless possibilities in results.

By practical plant breeding I mean the application of that knowledge of the science which will enable the worker to secure the highest ratio of economic value in the results. In my work on the Canna, which embraced all available species and early European hybrids, as well as the latest and best productions obtainable, I proved yearly the correctness and value of my contention, for seven years of select breeding gradually eliminated types of no commercial value, until in the last season not only were discards practically nil, but the value and quality of the selected seedlings were equal to those of the best novelties of European introduction.

The great value of the system advocated by me is the fact that the success of breeding depends much upon the removal of every influence adverse to increased multiplication of advanced types. This will be appreciated by those workers on bulky plants and trees of slow maturing habit, requiring a large acreage for development, and the fact that I am speaking from an experience with nearly a million new hybrid gladioli, a plant that requires comparatively little space, although needing from three to five years to mature from seed. Fifteen years of unbroken work on this now my sole specialty has also proven the value of my views in practice. In the progression of my system the first five years only is known to commerce, having been discarded by me 10 years ago; the second series of five years is little known commercially, and received the Pan-American Exposition Gold Medal and St. Louis World's Fair Grand Prize; while the third series of five years is all in my personal possession, and unknown outside my trial grounds.

*Extracts from a paper submitted to the Plant Breeding Conference, held in London, England, last summer.

It is imperative that the breeder should specialize, that he should use every obtainable wild species of his specialty, and in using each for the purpose dictated by his judgment and experience, thus control and render amenable to his direction the vital forces and chemical constituents of this foundation stock. By using all obtainable species he multiplies the possibilities for practical results and increased diversity in the material to be evolved from the product of future years, and yearly discarding species and early hybrids as they are superseded in the course of his operations.

Wild species are only of value so far as they may supply some desirable quality for incorporation in a domestic type containing other good qualities such as size, vigor, vitality and adaptability. Illustrating from my specialty, the blotch of the small purpureo-auratus can be placed upon a six foot domestic type, free from the objectionable cowled habit of this species, the throat mottling of the weak growing Saundersii can be transmitted to a race of strength and vigor, with the added influence of its wide, open flowers, and so on indefinitely.

That the foregoing can be done is good reason for not developing race hybrids, with the consequent loss of the most important quality of general adaptability to changed conditions. The natural development of wild species is usually accomplished by restricted conditions of habitat, an influence of ages impossible of neutralization by a few seasons' crossing. So highly do I appreciate this feature of adaptability that in bringing my productions to maturity I grow on four kinds of soil—sandy, sandy loam, clay loam, and humus or vegetable deposit—and before use in breeding they are proven in this quality in order that it may be also transmitted in crossing. Breeding from wild species is, therefore, of little practical value, as the farther our removal from their many objectionable features the better, and when by proper selection their best qualities can be controlled and applied according to our knowledge and discretion.

My advice to plant breeders is to multiply types by many thousands, using special proven selections as sires, on the lines of practice by successful animal breeders. Select and develop domestic races and sections of such high quality, vitality and general adaptability, that their progeny will not only be of higher quality than the parents, but that this quality will be produced in quantity in the highest possible ratio. This is practical plant breeding.

The Amateur's Greenhouse

SOME readers of THE CANADIAN HORTICULTURIST may have some chrysanthemum plants that they desire to keep over. While professional florists would not find it profitable to keep over old plants, amateurs may do so, as they do not make as close an estimate of the cost incurred through time and labor. Cut down the old stem to within an inch or two of the soil. After doing this keep the plants in a temperature of about 45 or 50 degrees. A comparatively cool temperature is necessary to prevent a too rapid growth of the young shoots that appear on the surface of the soil.

Water the plants often enough to keep the soil only fairly moist. Give air on warm days. When growth has reached about three inches pinch off the tips of the shoots. Repeat the pinching every three or four weeks until May. Then place the plants out of doors on fine days in a sheltered spot, to harden off the growth. Divide or pot the whole plant into a pot one or two sizes larger, or it can be set in the open ground to grow during the summer. Continue to pinch off the tip growth every few weeks until July. Then the plants may be allowed to grow at will.

Cyclamen bulbs that are showing flowering buds will require plenty of water at the roots. Light applications of liquid manure will increase the density of color and the size of the flowers.

Cuttings of lobelia, double alyssum, cupheas, and similar plants desired for hanging baskets and vases should be taken now. This will give them a chance to make nice plants by the time they are required in spring.

Why not grow some perennials and house plants from seed? As soon as possible sow seeds of verbena, pansy, lobelia, petunia, snap-dragon, daisy, forget-me-nots and impatiens. The plants will be of good size by planting-out time in May. Sow seeds of tuberous begonia now, if you want large flowering plants by June. Among the house plants that may be grown from seed sown in January or February are Jerusalem cherry, heliotrope, *Primula obconica*, and various vines such as asparagus ferns and the foliage asparagus (*A. Sprengeri*), smilax and *Cobea scandens*.

Forcing Vegetables for Market

J. L. Hilborn, Leamington, Ontario

A BRIEF description of our forcing houses may be of interest, as they are constructed differently to any I have seen. The main building is 42 x 100 feet, and has cement walls about two feet high. The boiler room, 16 x 20 feet, is made of the same material.

The roof consists of three even spans, resting upon valleys that are of sufficient height to allow one to walk erect in the paths which are about 15 inches below the top of the beds. There is an additional row of rafters on either side, extending from the outside wall upwards at half pitch to the first valley.

At intervals of 8 or 10 feet on both of these lean-to spans, we have well-constructed doors. These consist of a strong frame, made of three specially cut sash-bars, which are bolted to an angle-iron at both ends and properly braced. The outer sash-bars are grooved at the outside bottom corners, so as to fit tightly upon the rafters beneath. When these doors are closed the roof is as warm as if it were solid. The door frames are designed to carry two rows of 16 x 16-inch heavy glass.

Doors of this kind are very useful in a vegetable forcing house. They not only make easy the operations of taking in soil and fertilizers and of removing plants, but they also are valuable for ventilating later in the season, when ordinary ventilators do not furnish sufficient ventilation for best results.

All rafters in the house are made of cypress. They were well painted before erection. The foot of each is separated from the valley timber by a strip of galvanized iron. This prevents the woods coming together and causing decay at this the most perishable part of a greenhouse.

CROPS GROWN

We undertook to grow lettuce through last winter, and to bring along sufficient cucumber and tomato plants to plant the house in early spring. As we were late in getting started, and as we did not have a sufficient number of lettuce plants to properly fill the house until late in the season, we did not realize much profit on the crop. One must thoroughly understand the business and have favorable conditions to realize profit from growing lettuce in midwinter.

It was impossible to keep any part of the house warm enough to properly bring along the tomato and cucumber plants in midwinter. Fairly good plants were secured but, when ready for benching, it was too late.

For the spring crop, less than one-third of the house was planted with tomatoes; the balance with cucumbers. We began to bench the cucumbers early in April and concluded the work as soon as time and material permitted.

TRAINING THE VINES

For a number of years, we trained our cucumber vines to a trellis made of binder twine and supported by stakes. While good results were obtained, yet it was not satisfactory. The trellis had to be constructed each season and much tying of the vines was necessary.

This season, we constructed a trellis that has proved more satisfactory. It is made of wire. From The Page Wire and Fence Co., of Walkerville, Ont., we ordered a quantity of light gauge wire for the horizontal runs and a sufficient number of coiled bobbins to weave these into an eight-inch mesh. This made an excellent trellis. At the end of the season we loosened the supports, rolled up the wire and stored it for future use. It can be put up quickly when wanted again.

The Forcing Houses of Mr. J. L. Hilborn, Leamington, Ontario

TOMATOES

About the middle of April, the tomato plants were ready to bench. At that time we had large stocky plants, that were blooming well and setting fruit. Most of them had been grown in four-inch pots and were considerably pot-bound. This is an advantage, as it tends to hasten fruitfulness.

The plants were set 13 x 17 inches apart and tied to a string or stake. They were trained to single stems.

When the plants had reached a height of about four feet and contained four or five clusters of fruit, they were pinched back. Side branches were clipped off. The leaves also were clipped back to admit more light and a better circulation of air among the plants.

The plants blossomed profusely; almost every blossom set and developed nice, smooth fruit. The majority were of marketable size and sold readily. Had the crop been earlier, probably better prices would have been realized.

The beds for both cucumbers and tomatoes were fertilized with well-rotted manure and bone meal. About the time the harvesting of the fruits began, both crops were mulched with manure. The varieties of tomatoes that have done best are, in order named: Best of All, Frogmore and Lorillard.

Sweet Potato Culture

P. G. Keyes, Ottawa

I HAD long held the opinion that Ottawa was within the sweet potato belt; so, last spring, wishing to put my theory to the test, I consulted numerous catalogs with a view to obtaining the necessary plants. I was unable to find what I wanted offered in any Canadian catalog then in my possession, so was compelled to go to the United States for stock. It seems to me a want of enterprise on the part of our seedsmen that they do not catalog these plants. I placed a small order with a well-known Boston firm and received the plants about May 20. As last spring was unusually cold and backward in this locality, I put the plants in pots and kept them under glass until all danger of frost had passed, removing them to the garden during the first week in June. Not a plant failed to grow. By the middle of July they had taken entire possession of the ground.

Owing to the drought that prevailed in this part of Canada during the past summer I was obliged to water the plants

occasionally to keep them from wilting. About October 1, the vines were killed by frost. Being somewhat curious to know the result of my experiment, I at once proceeded to dig the potatoes. I found them growing in a vertical cluster attached to the base of each plant. Some of the largest were 15 inches in length and two inches in diameter. The product of one hill numbered 35. So well pleased am I with the result, that I shall try to grow at least 100 plants next year.

From my knowledge of the climatic conditions which prevail in Western Ontario, I feel satisfied that all the sweet potatoes required by Canadians might be grown in that part of our fair domain. They seem to thrive best in a warm soil, which should be deeply cultivated and well enriched. The vines resemble the morning glory or the English ivy, and, like these, will form roots at the axils of the leaves should they come in contact with the soil.

The Colorado potato beetle has no use for the foliage of the sweet potato plant. The absence of all insect pests in connection with its culture is of itself a source of great satisfaction.

The Culture of Cauliflower*

A. Knight, Cataraqui, Ontario

AFTER 40 years' experience in growing and handling the cauliflower, I find that it requires the closest attention from the planting of the seed until the crop is sold, to secure a good profit. With a good crop there is a good profit; a poor crop gives a l rge deficit.

ere is a greater demand for choice u ers to-day than for any other vegetable. It now requires thousands of heads to meet the demand where a few years ago hundreds would do.

THE SOIL

If properly prepared, any good soil will grow a fair crop. The land best adapted to growing a successful crop is a deep, rich loam that is thoroughly drained (underdrained if possible), so that it may be easily kept loose and mellow to retain moisture in a dry season.

The land should be made as rich as possible by repeated applications of well-rotted stable manure. Mix each application with surface soil to a depth of not more than four or five inches, so as to form a rich humus that will retain moisture even in the driest season. The fall is the proper time to prepare the soil.

GROWING THE PLANTS

One cannot be too careful in selecting the seed. The best is always the cheapest. If your seed merchant gives you good seed, stick to him. I have procured my seed from the same house for years and have always received it good and true to name. My favorite varieties are: Snowball, Erfurt and Rennie's Drouth Resister, for both early and late crop. I grow a few Autumn Giant, but find it not so sure a header, although it produces some extra fine ones.

For early crop, sow the seed early in March in a well-prepared hot bed and sow thinly. Thickly-grown plants are more liable to "damp off." To prevent this, the bed should have plenty of light and air, and not be watered too often. As soon as the plants are large enough to handle, they should be potted in fair-sized pots or transplanted into a new bed, which should be prepared several days before needed. Great care is required in setting out the young plants to prevent any serious check to their growth. A stunted plant is liable to head up prematurely and is worthless. By potting the plants, we get a much earlier crop and surer heads, and that means dollars. The plants can be set in the field quite early, as they will stand considerable frost.

The seed for the late crop should not be sown before the middle of May, and should be sown thinly in the very best soil to get good stocky plants. These do not require transplanting before setting in the field. Late plants require watching to prevent the cabbage fly from checking their growth. Tobacco dust or hellebore, dusted on lightly while the plants are damp, is the best preventative against them. Do not set plants too small. If kept growing rapidly, as they should be, they will be ready for the field in five weeks.

Transplanting should be done on a damp, cloudy day. I find it a good plan to take up the plants the day previous to setting in the field, leaving plenty of soil on the roots, and to place them in a damp cellar. New rootlets will start. It is a great help as it prevents wilting. They are more easily handled and the growth is checked very little.

CULTIVATION IN FIELD

Before setting plants in the field, the soil should be made loose and mellow by repeated cultivation, but not worked when too wet. For the early crop, I set the plants in rows three feet apart and 20 inches between the plants in the row. For late crop, rows the same and 30 inches between plants. Before planting, give the field a good dressing of wood ashes, so that it will be well mixed in soil by frequent hoeings and cultivation, which must be kept up until the crop is grown. Weeds should be kept down after plants are too large for cultivation, by hand pulling or hoeing, as the crop needs all the moisture the soil will give it.

The green worm must be kept off. Paris green or hellebore is a sure preventive. I prefer using the latter, as many customers object to the use of Paris green. If necessary, go over the field several times. Begin in time. They are sure to ruin the crop if not effectually dealt with.

As soon as heads begin to form, great care is required in tying up, to protect them from the sun, wind and dust. Perfect heads are what we should aim to get. From them we derive the profit. The tying should be so done that it will be easy to see when the head is ready to cut. Good judgment is required. It is better to cut a little early than too late. Young, tender heads are more saleable. More are consumed if taken to market young than later. If danger from frost threatens, the leaves should be tied more closely. This will protect the heads from a certain amount of frost, say seven degrees.

When the growing season is over, all plants that show signs of heading should be pulled and placed in the root house. Removing all leaves that are not required to protect the head. Leaving the roots and soil that lift with the plant. Stand them as closely as possible and bank up the outer side. You will thus have nice, small heads for a long time after the outside heads are done.

MARKETING

When marketing, the heads must be handled with care so as to reach the consumer in a perfect condition. I use a crate holding three tiers, 12 in each. The crate is partly open, so that the buyer can examine the contents. For shipping, use large barrels. Wrap the heads with paper and pack firmly so that they cannot move.

*The essay on growing cauliflowers that won first prize in the competition conducted by the Ontario Vegetable Growers' Association.

Nothing will run away with money like an uncared for greenhouse.

During the past there has been too much jealousy among the vegetable growers. There is much to be learned by reading, and also a great deal to be gained by the growers relating to each other their experiences with the various crops.—H. E. Reid, Toronto.

OUR QUESTION AND ANSWER DEPARTMENT

Readers of The Horticulturist are invited to submit Questions on any phase of Horticultural work

Self-sterility of Fruits

What is meant by self-sterility of varieties?—R. G. W., Nelson, B.C.

Certain varieties of fruits, when planted alone, fail to fertilize their own blossoms and are said to be self-sterile. They are barren to their own pollen, although that pollen may fertilize the flowers of other varieties. Self-sterility is said to be due to the pollen of such varieties being impotent or uncongenial when it falls upon the pistils of their own flowers. This condition is a varietal peculiarity and may be affected also by climatic and local conditions.

Subsoiling for Strawberries

Should a sandy loam with clay subsoil be plowed with a subsoil plow for strawberries?—G. H. de B., Toronto.

Where sub-soiling can be done, it is advisable to loosen a clay subsoil for strawberries and other fruits, but in a small garden it is not imperative. The operation improves the drainage and gives the roots a deeper and freer area from which to draw moisture and plant food.

London Purple

Compare London purple with Paris green as an insecticide.—E. F., Oakville, Ont.

The composition of London purple varies considerably and, as a consequence, it does not give as uniform results as Paris green. It is cheaper than Paris green and is more soluble in water. London purple contains some free arsenic and, when used, must be mixed with lime.

Mulching Trees

Does mulching retard the blooming period of trees, as peaches or plums?—C. S., Berlin, Ont.

No, mulching does not retard the blooming period. Buds can swell and grow while the roots remain frozen and dormant. The bursting vegetation of spring time is more or less independent of root action. It is supported by a store of nutriment within the twig.

The Care of Manure

Kindly state how to prepare manure for fruit growing purposes. Is it necessary to give the same treatment to manure hauled from the city as to that produced in the home stable?—G. H. de B., Toronto.

For fruit growing, it is best to apply barnyard manure in a rotted or partially rotted state. Covered sheds are used for temporarily storing manures, where they can have water added if too dry or if likely to "fire-fang"; or absorbents, such as straw or gypsum, may be used if they are too watery. Manure hauled from the city will give best results if thrown in the shed and mixed with the home-produced material. Manure for tree fruits may be applied in a greener state than that intended for the growing of small fruits.

Moving Large Shade Trees

I have some fairly large shade trees that I desire to transplant. What is the best time to do it and how?—P. T., St. Stephens, N.B.

The best time to move large trees is in winter. In late fall or the early part of an open winter, a trench should be dug around and at a reasonable distance from the trunk, depending upon the size of the tree. This will leave the roots in a ball of earth which, when frozen, may be moved with the tree; thereby permitting the operation to be performed without disturbing the roots.

Making Plans for Lawns

I desire to prepare a plan for improving the grounds about my home. Please outline some of the principles to be followed.—L. B., Georgetown, P.E.I.

It is best to have the lawn open and wide and to group the trees and shrubs on the borders. Zigzag borders are the most effective. Plant irregularly and allow the grass to run into the openings between and apparently behind the clumps. This makes the lawn appear as though it extended much farther than it really does. By preserving open outlooks at a few places in the border, we may appropriate to ourselves distant views. Other pointers on this subject are embodied in an interesting article on page 9.

Watering House Plants

When watering house plants, is it well to apply sufficient water to run out at the bottom of the pot? Does not plant food leach out when that is done?—W. A. F., Ottawa, Ont.

It is not advisable to apply sufficient water to run through the bottom of the pot in appreciable quantities. It is necessary to gauge the amount, so that when it first appears to trickle through, it will then stop. It should be noted, also, that soil in a pot acts as a filter. The first water that percolates through it comes out somewhat pure. Should a constant stream run through, however, considerable plant food would be lost.

Vitality of Seeds

How long will seeds retain their vitality?—A. B., St. Johns, Que.

The period of vitality varies with the kind of seed. Seeds of the willow lose their vitality in two weeks after maturity; on the other hand, seeds of the cucumber may retain their vitality for ten years. It is said that oily seeds will retain their vitality longer than others. This is true with regard to the seeds of mustard, which may retain their vitality as long as 30 years, but is not true of large seeds like the walnut, butternut and similar types. To a certain extent, the vitality of seeds depends upon surrounding conditions.

Books on Hedges

Please tell me the titles of some books on the growing and care of hedges for ornamental purposes?—V. F., Kentville, N.S.

An excellent treatise on the subject is entitled "Hedges, Windbreaks, Shelters and Live Fences," by E. P. Powell. It will be furnished by THE CANADIAN HORTICULTURIST on receipt of price, which is 50 cents.

Optimum Temperature

What is meant by an optimum temperature for the germination of seeds?—R. McI., Owen Sound, Ont.

An optimum temperature for the germination of seeds is that temperature at which the greatest number of a given quantity of seeds will germinate most rapidly. It is the condition of temperature that produces the best results.

Sweet Potatoes

Can sweet potatoes be grown successfully outdoors in this locality Kindly state how to go about it. Can they be sprouted in the house like Irish potatoes.—G. H. de B., Toronto.

Sweet potatoes cannot be grown in Canada with commercial satisfaction, except perhaps in the Essex peninsula of Ontario. In an amateur way, excellent specimens have been grown by Mr. Walter Ross, of Picton, Ont., by Mr. P. G. Keyes, of Ottawa, and others. It is not customary to sprout them in the house. Tubers are bedded in an outdoor hotbed early in spring. In a few weeks the latent buds will sprout, and by the time all danger from frost has passed, a dense growth of "slips" will cover the bed. These are removed from the tubers and set by hand in the field or garden in rows three or four feet apart—the plants generally fifteen inches apart in the rows. Read the article on page 13 of this issue.

The Canadian Horticulturist

Published by The Horticultural Publishing Company, Limited

The Only Horticultural Magazine in the Dominion

Official Organ of British Columbia, Ontario, Quebec and Prince Edward Island Fruit Growers' Associations and of the Ontario Vegetable Growers' Association

H. Bronson Cowan, Editor and Business Manager
A. B. Cutting, B.S.A., Associate Editor
W. G. Rook, Advertising Manager
Garrett Wall, Circulation Manager

GREAT BRITAIN

Frank Fletcher, 135 Henrietta Street, Old Trafford Manchester, Eng., Advertising and Circulation Manager

1. The Canadian Horticulturist is published on the 25th day of the month preceding date of issue.

2. Subscription Price 50 cents a year, three years $1.20, strictly in advance. For all countries except Canada, United States and Great Britain add 50c. for postage for each one year subscription.

3. Remittances should be made by Post Office or Money Express Order, or Registered Letter. Postage Stamps accepted for amounts less than $1.00.

4. Discontinuances—Responsible subscribers will continue to receive The Horticulturist until the publishers are notified by letter to discontinue, when all arrearages must be paid.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising Rates quoted on application. Circulation 5,500. Copy received up to the 18th. Responsible representatives wanted in towns and cities.

7. Articles and Illustrations for publication will be thankfully received by the editor.

Our Protective Policy

We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason to believe that any of our advertisers are unreliable, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant we will expose them through the columns of the paper. Thus, we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefits of this Protective Policy is that you include in all your letters to advertisers the words "I saw your ad. in The Canadian Horticulturist." Complaints should be sent to us as soon as possible after reason for dissatisfaction has been found.

Communications should be addressed:
THE CANADIAN HORTICULTURIST,
506-7-8 Manning Chambers,
TORONTO, CANADA

A MUCH NEEDED MOVE

The success of the proposal of Hon. Sydney Fisher, Dominion Minister of Agriculture, to set aside $100,000 to encourage the erection and operation of cold storage warehouses for the protection of perishable products, including fruit, will depend upon the manner in which the money is distributed. Properly managed this appropriation should accomplish a vast amount of good for the fruit industry of the Dominion. The feeling among growers that cooperation presents a solution of the many serious defects under which they have labored has been growing during the past few years. The financial assistance now suggested by Hon. Mr. Fisher may prove the only incentive that has been lacking to lead to a great expansion of this movement.

What is wanted, so far as the fruit growers are concerned, is not so much assistance for the erection of plants with mechanical cold storage, as it is assistance that will enable them to erect simple but commodious buildings such as those being used by the Walkerton, Thornbury, Oakville and one or two other cooperative fruit growers' associations of Ontario In most of these warehouses there are no facilities for cold storage, even with ice. They would be improved however, were ice cold storage added.

The cost of installing mechanical refrigeration is so great and the period during which it would be required by the great majority of our fruit growers—excepting only those in such sections as the Niagara district, and the southern portions of British Columbia, where the tender fruits are handled extensively—is so limited that attempts to encourage such refrigeration would be likely to prove more disastrous than beneficial.

It has been suggested that the assistance to be granted by the Dominion Government should be extended over a period of four years. The object to this extension of the time of payment is to insure the operation of the buildings, once they have been erected. We do not consider this drawing out of the period of payment would be advisable. The proportion to be paid by the Dominion Government is so small, that were it to give only one-tenth, as is now proposed, on the completion of the buildings, it would not be sufficient to lead the average "farmer-fruit grower"—and it is this class that is likely to receive the greatest benefit from this movement—to put up the remaining nine-tenths, that it would be required even with the assurance that a portion of that amount would be rebated within the next two years. Once a building has been completed, the mere fact that it has been erected, should be all the guarantee that the Government will require that the building will be used later. If the Government, therefore, will agree to give 25% of the cost of the building upon its completion in a manner satisfactory to the department, and say, 5% at the end of the first year, its offer, in all probability, will be accepted by a considerable number of associations and individuals throughout the country.

If it is the Government's intention to grant this money to encourage the erection of ordinary warehouses, suitable for the storing of winter apples, whether or not they have ice storage, and if the period of payment is not extended unduly, we believe that the proposal of Hon Mr. Fisher will prove one of the greatest boons the fruit industry has ever received, and that the results will be a lasting memorial to his work.

BEAUTIFYING SCHOOL GROUNDS

While travelling throughout the Niagara district last summer, we had occasion to observe the various degrees of ornamentation to be seen around and about schoolhouses in villages and country districts. Far too many of them show little or no attempt to beautify the school surroundings, and thus they present deplorable pictures of barren aims and crude ideals. On the other hand, there are many school grounds that are beautifully laid out and planted with taste and care.

The Rittenhouse school, with the surrounding grounds, Jordan Harbor, Ontario, as illustrated in this issue, is one of the finest, if not the one *par excellence*, in Canada. It is a model for others to copy. But as it is privately endowed, and not at the mercy of a limited allowance, it is not surprising to see it in the lead. There are many schools, however, with only ordinary resources that have been made beautiful. The school grounds at Grimsby, Ontario, though comparatively new, are being improved each year by means of tastefully planted trees, clumps of shrubbery and beds of flowers. Many schools in other parts of the province, less favored than the one at Grimsby, are also improving the appearance of their surroundings. Last summer we visited the school at Vineland, Ontario, and enjoyed the privilege of a little talk on nature study with the children. The school is well equipped with material for practical instruction in nature study. Mr. J. E. Painter, the teacher, is to be congratulated on his efforts in this direction, and particularly for his many original schemes and ideas for making the children interested in the work. The school grounds are nicely planned. Trees and shrubs and flower beds, some formal and some natural, present a very pleasing effect. As yet, there is no land for school gardens. To offset this, Mr. Painter requires his pupils to set apart a small plot for the purpose at their homes, and, at regular intervals, to report progress. Were teachers, similarly situated in other districts, to adopt this scheme, it would not be possible to accuse them of lacking a desire to bring the child in closer touch with nature.

SCIENCE IN FRUIT GROWING

Many fruit growers object to the use of the word "science" when applied to fruit growing, or, in fact, to any phase of agricultural work. When the word "science" is brought into conversation on fruit matters, nine men out of ten will resent its use, because they imagine that science is beyond the scope of commonplace things. When a man talks of science in fruit growing he is considered unpractical—a dreamer of things in the clouds, away above earthly possibilities and ordinary practices. This idea of the meaning and value of the word "science" is far from the correct one. Science is nothing more than knowledge, and knowledge systematically arranged.

When the knowledge gained by practical experience in fruit growing is arranged into a system, it becomes a science. Fruit growers should not, therefore, be too hasty in criticizing the value of science in fruit growing' 'Tis true that the scientific man often formulates theories and advances ideas that are, at first thought, somewhat far-fetched and impracticable—some of them may be far from correct. Nevertheless, such theories and such ideas, although apparently of no immediate value, go to show that these men of science are striving for more knowledge, which may be systematically arranged for the benefit and use of those who devote their attention to the practical side of the business. The practical man is the most important factor in our fruit industry, but he should bear in mind that the scientific man also has his place—a place more important than many fruit growers will admit.

The suggestions of the deputation of vegetable growers, appointed by the Ontario Vegetable Growers' Association to visit Guelph and confer with the executive of the Ontario Agricultural and Experimental Union, were practically ignored by the director of cooperative experiments in horticulture. In an address on the subject, Professor Hutt said that such work could not be attempted inside of three or four years, as he considered it necessary for the Union to have a basis upon which to select and disseminate varieties, and to outline experimental work of other kinds. This conception of what is necessary is rather far-fetched. It does not carry weight with the vegetable growers, who point out that the Horticultural Department at Guelph has been testing varieties of vegetables that were discarded by them years ago after practical tests. A basis for experimental work in vegetables can be furnished by hundreds of practical vegetable growers throughout the province, men who have spent a lifetime in experimenting in a practical way with all the leading varieties offered for sale by seedsmen. Such growers could furnish information now without it being necessary for trials to be made at Guelph. Cooperative experiments in vegetables should be made a feature of the Experimental Union work for this year. There is no excuse for waiting three or four years.

The new tariff does not materially affect the fruit situation. The duties, with one or two exceptions, are practically the same as before. Pears, instead of an *ad valorem* duty of 20 per cent., are now covered by a specific duty of half cent a pound; plums, formerly under an *ad valorem* duty of 25 per cent., are now changed to 30 cents a bushel. The placing of oranges and lemons on the free list will create a greater demand for foreign fruits, and possibly some decrease in the desire for home-grown fruits. This feature of the new tariff, together with the utter disregard of the Tariff Commission for the request of fruit growers for more protection,

lead us to the conclusion, predicted in the columns of THE CANADIAN HORTICULTURIST last spring, that when fruit growers themselves fail to agree, the tariff remains the same.

The request of the Ontario Vegetable Growers' Association to have the government grant to the association of $600 increased to $1,000, is a reasonable one. This association receives a smaller grant than any other association of the kind in the province. It has almost double the membership of any other association. Its membership, also, is more representative than that of other organizations. Branches of the association are to be found from Ottawa and Kingston in the east, to Sarnia and Tecumseh in the west. The vegetable industry is much more important than that represented by the Ontario Beekeepers' Association. The Beekeepers' Association receives a grant of $1,000 a year, and it has a very small membership. Although not much more than an infant, the Ontario Vegetable Growers' Association already has done much to awaken a greater interest in advanced methods of culture in the production of vegetables. Its future success will depend largely upon the assistance the association receives from the Ontario Government. The sum asked for is a reasonable one and the granting of anything smaller would not be in accord with the dignity of the Ontario Department of Agriculture, which has accomplished much valuable educational work through organizations of this kind.

Fruit growers in all parts of Canada will watch with interest the progress of the large commercial fruit company that has been organized in Nova Scotia by Mr. Ralph S. Eaton, who is president and manager, and others. The Hillcrest Orchards, Limited, has been organized in the right way. Being under corporate management, with Mr. Eaton at its head, it promises success. Mr. Eaton is a man who is familiar with the technical as well as the practical phases of fruit growing. He is, also, a business man of more than ordinary capabilities. Under Mr. Eaton's direction, the Hillcrest Orchards, Limited, is likely to be a paying investment. Failures of previous attempts to form companies of this kind have been due largely to lack of experience on the part of the men in charge.

The secretaries of all horticultural societies will confer a great favor on our circulation department if they will kindly send in their subscription lists for 1907 at the earliest possible time after their annual meetings. This will enable us to have all names correctly entered on our mailing lists for the coming year, and insure all the society members receiving every issue of THE CANADIAN HORTICULTURIST throughout the year. It often happens that when names are received one or two months after the annual meetings, that back copies of THE HORTICULTURIST have been exhausted, and subscribers are unable to receive the full year's issue.

Those of our readers who desire a bound volume of The Horticulturist for 1906, can obtain same at our office. Owing to the size of the magazine having been enlarged for 1906, the charges for binding will be a little higher than formerly. Volumes for last year will be bound for $1.25. No better horticultural work of reference could be desired than a bound volume of The Horticulturist. It is up-to-date, newsy and makes a very valuable book when bound for the year. Send in your back copies for binding.

It is a source of satisfaction to find goods, purchased from a firm not personally known, to be as good or better than represented. Goods advertised in the columns of this paper are sold by firms that do business on the square. Readers will do well in patronizing our advertisers.

"We are pleased to notice that THE CANADIAN HORTICULTURIST is growing with each issue."—A. G. Hull & Son, St. Catharines, Ont.

Ontario Agricultural and Exper'l Union

AT the recent meeting of the Ont. Agric. and Exp. Union, held in Guelph, a number of subjects of interest to fruit and vegetable growers were discussed. The question of introducing vegetable tests in connection with the work of the Union was the subject of a brief talk by Prof. H. L. Hutt. In the course of his remarks, he intimated that the Union was willing to undertake work of that nature, but that the time was not yet ripe. He said that he required 3 or 4 years to carry on work with vegetables at Guelph before it would be wise to disseminate material for cooperative work over the province. A committee was appointed to confer with a delegation of vegetable growers from the Ont. Veg. Grs. Assn. The result was not encouraging to the growers.

Mr. J. Lockie Wilson

Recently appointed Superintendent of Agricultural and Horticultural Societies for Ontario to fill the position made vacant by the resignation of H. B. Cowan, editor of this paper.

A report of cooperative experiments on small fruits was presented by Professor Hutt. He outlined the progress of the work from its beginning to the present day. Particulars were given regarding the cultural directions sent out when the plants and the varieties disseminated were mentioned.

"Our Commercial Fruit Interests," was the subject of a valuable address by A. McNeill, Chief, Fruit Division, Ottawa. He outlined the various fruit-growing areas of the province and mentioned the classes of fruits adapted for each. The tender fruits are confined to the western end of Lake Ontario. The particular industry of that district is the growing of vegetables and fruits for the early markets. It has at least 2 weeks the advantage of any other section of the province in the point of time. The capacity for production is unlimited. Local markets are sometimes over-supplied. Distant markets cannot get the material they require. Ottawa will take 2 or 3 carloads of strawberries a day. There is a splendid opportunity to open up a good trade in other parts of this province and in other provinces. The counties along the north shore of Lake Ontario produce some of the finest winter fruit that is grown in the world. The cost of storage is so small comparatively that there is little fear of gluts in the markets for that class of fruit. Owing to altitude, there are sections in the province, apparently in the midst of a fruit-growing area, that cannot grow fruits to perfection. On the whole, the future for apples in Ont. is bright.

A practical paper on the results of cooperative experiments with fertilizers, was read by Prof. R. Harcourt. He pointed out the value of fertilizers, and the limits of their effectiveness. A report on farm forestry for 1906 was read by E. J. Zavitz. He emphasized the importance of planting with trees, especially white pine, waste farm lands, steep, gravelly hillsides and other areas not adapted to the growing of farm crops. While it is not generally considered remunerative work, there is no investment that will yield such large returns as will the wood lot if properly managed.

In connection with the subject of our fruit interests, Robt. Thompson, of St. Catharines, spoke on the possibilities of developing the markets of the west. Two years ago, Prof. Reynolds sent 2 experimental carloads of fruit from Ont. to the west. That was the beginning of a wonderful progress. This year, no less than 64 car loads were sent from St. Catharines. While Ont. growers must compete with B.C. in that market, they have the advantage in quality. The dealers of the west prefer Ont. grown fruit. Mr. Thompson intimated that it will be 20 years at least before Ont. is able to provide a sufficient supply of fruit for the west. A. E. Sherrington, of Walkerton, also took part in the discussion. He dwelt more particularly on the question of cooperation among fruit growers. He mentioned many interesting features of the cooperative movement.

Judging Exhibition Apples

Editor, THE CANADIAN HORTICULTURIST,—At the late fruit exhibition in Massey Hall, Toronto, there was a very large amount of discussion with reference to the merits of certain apples shown as plate specimens. Among the exhibits could be found some clean, smooth, bright apples, almost perfect in every way but only of normal size or perhaps slightly below. In competition with these, there were frequently some extraordinarily large apples, but somewhat rough and lacking in color. Although the question of quality, as judged by the palate, could not in all cases be determined at that time, it is to be presumed, as the result of almost universal experience, that the smaller apples would have the finer flavor. The question involved was to which should the prize go in case of competition between two such lots of apples. In some cases, it was asserted that the higher prize went to the large apples rather than to the smaller ones.

The point I wish to raise is this: Is there any agreement among fruit men generally as to the value of size in plate specimens? Until we have some such agreement and until this agreement is expressed in the prize list, there will be an unnecessary friction between exhibitors and an unmerited criticism of the judges.

In order to start a discussion on this subject, I state my personal view of this case with the hope that it may draw out the opinions of others. I should be strongly in favor of following the custom in vogue in England of regarding any size above normal as a grave defect in a dessert apple, and that, even for cooking purposes, there should be only a moderate value attached to size compared with the other qualities of regularity, smoothness and high flavor. I should, therefore, be in favor of adding a note in the prize list to the effect that judges be instructed by the Directors to regard abnormal size as a serious defect in the dessert class.—A. McNeill, Chief, Fruit Division, Ottawa.

Before Buying Books, write for our extensive book catalog, which we will gladly send free to all interested in horticultural works. It contains 16 pages and should be in the home of every fruit grower, gardener, and amateur florist. It is a good reference book. Send for it now.—THE CANADIAN HORTICULTURIST, 506-7-8 Manning Chambers, Toronto.

The Ottawa Garden Competitions*

S. Short, Ottawa

THE effect of the garden competitions in the city of Ottawa has been beneficial, both from an educational and an ornamental standpoint. The city has improved in appearance. These competitions were inaugurated by Lady Minto in 1902. The objects that Lady Minto had in view were the encouragement of neatness and order in the keeping of grass plots and flower beds in the private homes of the citizens, especially where fronting the street; the encouragement of flower growing, and their tasteful arrangement in beds or borders; and to awaken increased interest in horticulture in general, so that the gardens and lawns entered in the competition might be object lessons to the rest of the citizens. It was hoped also that the presence of a well-cultivated and pretty garden in every part of the city would shame the owners of neglected gardens into improving them. A general and uniform neatness would be the result.

JUDGES AND JUDGING

Three gentlemen prominent in horticulture and amateur gardening were appointed by Lady Minto to act as judges for the 3 years, 1902-03-04. These were Mr. R. B. Whyte, Ottawa's leading amateur gardener, chairman; Mr. W. T. Macoun, Horticulturist, C.E.F., Ottawa; and Mayor J. A. Ellis of Ottawa. The gardens were visited four times during the season, about the last week in June, July, Aug., and Sept. Points were given monthly for neatness and order, floral display and general effect.

COMPETITORS

The competitors were divided the first year into 2 classes, those employing professional gardeners or outside help during the season, and those who did the work themselves or with the assistance of members of their immediate household only. Amateurs were allowed to employ outside help before and on May 24, but not after. The city was divided into 2 districts. Prizes were awarded to the three best gardens in each district. The remaining competitors received no rewards. The prizes consisted of gold, silver, and bronze medals, suitably engraved. The 2nd year, 1903, the percentage plan was introduced. In the professional class three valuable medals were presented In the amateur class, all competitors scoring over 75% received $15 cash, and those scoring under 75% and over 60%, $10 in cash. In 1904, the gardens were judged together, no distinction being made between professional and amateur. As some competitors did not care to receive cash prizes, Lady Minto substituted medals and certificates of merit, signed personally by Her Excellency.

A COMPETITOR'S EXPERIENCE

During the first 2 years of the competition, I personally was not successful in winning a high prize, but I gained experience. Each month, immediately after the judges' rounds, I visited the first 3 gardens on the list. There I took notes of value for use in my own garden.

When the competition opened in 1904, I catered to the judges' taste in regard to grouping and blending of flower colors. My reward was one of the first prizes. Beside the honor of winning the first prize, many other advantages were mine. The garden always was scrupulously neat. We had more bloom of better quality than ever before. Flowers from my garden won more prizes at the Hort. Soc'y's shows than in former years. I had gained a broader knowledge of and a keener enthusiasm for horticulture.

A JUDGE'S EXPERIENCE

With the termination of Lady Minto's stay in Canada ended the garden competition under her name and direction. After the lapse of a year, the scheme was revived by Lady Grey. The judges appointed by Her Excellency are Mr. W. T. Macoun, chairman; Mr. H. N. Bate, chairman of the Ottawa Improvement Commission; and myself, Pres. Hort'l Soc. Mr. Bate acted as referee or consulting member, and did not visit the gardens with the other judges. In addition to giving 20 points each for cleanness and order, floral display and general effect, the judges this year have given 20 points for labor and enthusiasm. This would give new beginners a chance to compete with experienced gardeners.

On the whole, the different competitors kept up their enthusiasm during the summer, some of them remarking to the judges that they were determined to win a high prize, evidently being quite satisfied with their work. It would have been better for them had they visited some of the leading gardens in their neighborhoods and made observations for improving their own places. I am afraid they will be disappointed when the scores are announced.

One garden that scored well is situated in one of the poorer districts of the city, renting for probably $6 or $7 a month. All the houses on that side of the street are alike. About the middle of the block is situated the house and garden entered into the competition. The house is the home of an English family; the mother and children—chiefly girls—are all lovers of flowers. Their efforts in flower growing were very successful and somewhat pathetic. The garden consisted of a little plot about 5 ft. wide and 10 ft. long in front of the house and a little alleyway leading to the back yard. The flowers were grown in flower-pots, home-made hanging baskets and old iron vessels, painted green. Fuchsias, geraniums, calceolarias and other house plants formed the collection used to ornament the little verandah. During the long, dry summer these plants were beautifully fresh, always in bloom and exceedingly attractive, so much so that they drew the attention of the passer-by from the broken gate and unpainted fence which we were told the landlord promised to repair in the fall. In the alleyway, spiræas and ferns flourished, and in every available corner of the back yard the different annuals bloomed to perfection, showing daily attention. The little yard was divided up, each little girl having a portion. Keen rivalry seemed to exist and when the judges praised an individual bloom its owner showed intense satisfaction. This garden and the happiness that the family derived from it are object lessons to their neighborhood.

The best garden this year is owned by a middle-aged civil servant who looks after it himself. The garden is evidently his hobby. It is the back-half of a city lot that runs through from one street to another. The garden scoring 2nd place was one of the largest entered. A professional gardener was employed. The third garden is owned by an amateur and is situated on the side of a steep hill.

The judges were instructed to consider the circumstances of each competitor and the size of each garden. In judging a small garden we expected a higher degree of excellence than from a larger. In gardens with wealthy surroundings we expected choicer varieties of flowers than in those of humbler circumstances.

EFFECT OF COMPETITION

The inauguration of the competitions by Lady Minto awakened a new era of horticultural enthusiasm in Ottawa. A short time afterwards, the Ottawa Improvement Commission was appointed by the Dominion Govt. and given an annual appropriation of $60,000 to be spent in improving the driveways and beautifying unsightly spots about the city. Membership in the Ottawa Hort'l Soc. rapidly increased. This year the membership is the largest of any society in the province. Larger entries and better quality of exhibits were a feature of the society's shows. Flowers seeds and printed instructions on how to grow them were distributed to the school children of Ottawa by R. B. Whyte and other patriotic citizens, who donated also prizes in the autumn for flowers grown from the seeds distributed. School trustees sodded and ornamented grounds around schools that before were ugly and bare.

A love for flowers has been developed among the citizens in general. Florists' establishments have doubled in number during the last four years. Market gardeners, who formerly grew only small fruits and vegetables, are now growing large quantities of flowers, chiefly sweet peas and asters, to sell at the market at a greater profit than the vegetables. On the whole, the competition has worked wonders in Ottawa. The scheme commends itself to the benevolence and public spirit of the citizens of any city or town, no matter what the size Philanthropy can find no better channel.

*A paper read before the convention of the Ontario Horticultural Association recently held in Toronto

An Old Man's Good Work

I have obtained 15 subscribers for THE CANADIAN HORTICULTURIST. Had I received the agency sooner I flatter myself that I could have more than doubled the number, for this is a wholly rural section. The farmers here take other farm papers that are hard to oust. Yet I have done it a little.

To get the 15 subscribers I had to walk an average of 2¼ miles per subscriber. I am an old man, 86 years old. In doing this I have done what I desire. I have introduced in my locality the best horticultural paper in Canada.—S. P. Morse, Lowville, Ont.

Horticulture in Schools

Rev. P. C. L. Harris, Guelph, Ont.

Five years ago, the Guelph Horticultural Society began its work among the school children. The first year's distribution was geranium plants. About 300 of these were given out. The exhibition in the early fall was very fine, but in the distribution several varieties were used, and this resulted in a lack of uniformity. Some plants were free bloomers; others were slow, etc. The second year, and in 1905, we distributed the seed of Semple's Branching aster. The first time about 500 packets were distributed, while in 1905, about 926 packets were given to the boys and girls of the public and separate schools. The exhibition in 1905 was not proportionately as good as that of the year before, which was exceedingly fine. Last year geraniums were again distributed, all of one variety, and about 500 pots in all.

It is very difficult to estimate the results of the work; that can be better done after further trial. There are, however, some evidences of good accomplished. The prizes given for these competitions have been mostly bulbs, and many of the children are beginning to take a good deal of interest in the growing of bulbs of different varieties and are succeeding well.

Such competitions will inspire a love for the beautiful in plant life, both for the house and garden. The full results will be seen after many days. It pays.

Have you a friend who you think would like to take THE CANADIAN HORTICULTURIST? Send us his name and we will gladly send him a specimen copy. "The More the Merrier!"

I renew with pleasure my subscription to THE CANADIAN HORTICULTURIST, which I have taken for the past 20 years. Throughout these years I have learned many useful things from its pages, and expect to learn more as the magazine grows in size and importance.—Walter N. Turnbull, Galt, Ont.

Suggestions for Work at New Exper't Station

J. W. Crow, O.A.C., Guelph

THE establishment of a new experimental farm in the Niagara district was mentioned first in connection with plant-breeding. It was thought that the Ont. Govt. should undertake this work. In order to draw out discussion of this question through the press and at fruit growers' meetings this winter, the following is submitted. Others will no doubt discuss the experimental and researeh work to be undertaken. Plant-breeding in Ont. must have 4 objects in view:

1. The improvement of our present commercial varieties with respeet to their shipping qualities and the production of new varieties of superior excellence in this regard. This is the crying need of the Ont. fruit industry to-day. Our fruit is handicapped in the distant markets in whieh we are compelled to sell because it does not carry well and consequently arrives at the door of that consumer in poor condition. Shipping quality is lacking in all early and mid-season peaches; also in many otherwise excellent plums, and in most grapes. Earlier peaches as good as Crawford and as firm as Elberta; plums like Reine Claude but of different season, and compact bunching, mildew-proof grapes, as firm as Lindley, are within the range of possibility, and would reward all effort and outlay in producing them. Many other lines of improvement might be mentioned that will occur to fruit growers.

2. The production of good varieties of sufficient hardiness to withstand the vigorous climate that prevails over the greater portion of this province. Many who are not fortunate enough (horticulturally) to live in the region adapted to tender fruits desire to grow their own plums, grapes, cherries, etc., and it will be seen at once that their interests are to a certain extent opposed to those of growers in the more favored sections. While the needs of the Niag. dist. growers should occupy a large share of the attention of the plant-breeder, plans for the future should be broad and comprehensive, and everything possible should be done on the new farm for both interests.

The extent to which hardiness ean be bred into a plant is a matter of conjecture and remains to be determined. In the light of recent knowledge it would seem that this work can be carried on to a greater or less extent in the Niag. dist. It is conceded that selection within the limits of the species can result in no change in hardiness; the only alternative is cross-breeding or hybridizing. At So. Dakota this crossing is done in the greenhouse, because the tender species which they desire to use will not stand their winter unprotected, and because the high winds which prevail make outdoor crossing difficult and arduous. It would seem that the crossing could as advantageously be done out of doors within the habitat of the less hardy species, and the new station is favorably situated for much work in this direction. The actual testing of the promising seedlings produced would, in any event, require to be general throughout northern sections.

3. The production of new varieties of excellent merit without regard to their shipping quality or hardiness. Large quantities of this class of fruit are already consumed in the fresh state in the Niag. and Essex peninsulas, and sold in the markets adjacent to them. Additional large quantities are made use of by the canning factories, and these 2 interests are practically identical in the quality of fruit used. Extension of season in either direction, so as to give a better succession of high-class fruits throughout the year, is much to be desired. Cold storage facilities aid in lengthening the canning season only in 1 direction, and good early varieties of peaches, pears and plums would be most welcome to the canner and to the home consumer.

4. The improvement of fruits native to but uncultivated in the more northern sections. Our native cherries have never been improved, and the hardiness and productiveness of these and of other fruits, such as blueberries, offers an interesting field to the plant-breeder. This work must be forwarded in the section to which the fruits which it is desired to improve are native, but it should be done under the direetion of the head of the plant-breeding department.

There are many other problems arising out of the foregoing, sueh as the production of disease-resistant varieties, and of more suitable stocks for grafting and budding, which require solution. In addition to these the problems of the vegetable grower and florist demand attention. The breadth of the work and the importance of the interests concerned merit generous treatment at the hands of the government. The director of the new station should be thoroughly capable of directing the experimental and plant-breeding work, and should be allowed a free hand in doing so.

No work in hybridizing can be undertaken at the new farm until trees and plants reach bearing age. In the case of the tree fruits this means several years' time lost unless work can be begun in other places. This brings to mind the experiment stations and their stock of varieties already in bearing. It is quite possible that excellent use could be made of some of these.

The Dept. of Hort. at the O.A.C. has made a beginning in plant-breeding and has several promising seedlings under test. Extended work with fruits, flowers and vegetables is being planned for the future. The dept. would be pleased to obtain results of accurate observations on disease resistance. It is desired to find out if there is variation in this respect *within the variety*. If such is the case, selection alone would probably bring about the desired end. If such is not the case, the crossing of varieties, which is a much more uncertain process, would have to be resorted to. Information concerning specific examples of resistance to mildew, scab, rot or blight in varieties subject to these diseases would be gladly received.

Letters from Hort'l Societies

The St. Thomas Hort'l Soc. was organized in Jan., 1906, and we enrolled over 80 members. Our first work was to start a lawn and garden competition. We have been trying to get the city counell to beautify certain plots and to acquire property for park purposes in the city. In conjunetion with the schools of the city, a flower show was held on Sept. 22. No prizes were offered, but through the school children a large exhibit was secured. THE CANADIAN HORTICULTURIST was given to each member and bulbs were distributed in Oct. We expect to distribute seeds next spring to the school children and to our members. A committee of 2 of our members contributed seasonable articles to our daily papers, for the information of members. On Dec. 6, a public lecture was given by P. M. Thompson, M.A., Science Master of the Coll. Inst. on "Plant Societies." There was a good attendance. We expect a strong society next year.—S. Silcox, Pres.

THE KINCARDINE SOCIETY

The Kincardine Hort'l Soc.'s work the past year has exceeded the work of any year of the former 7. Its progress is steadily onward. Every encouragement is given to plant for recreation and profit. Nearly every garden and home is embellished with plants of rare beauty and merit.

We have encouraged the culture of fruits, and always place a fair proportion of fruit trees bushes and vines on our premium list, as well as plants and bulbs. We aim to give every member many times more value than is got from the membership fee of $1, as you will see by the following list of trees and plants presented to the members: Fruit trees, 192; lilies, 108; perennial phlox, 15; callas, 24; dahlias, 40; gladioli, 150; tulips, 805; hyacinths, 240, azaleas, 39; geraniums, 180; roses, 98; and shrubs, 35.

Our membership the past year was about 135. We hope to have it over 150 the coming year.

Our annual show was held on Aug. 30, and was well patronized by young and old. From the schools were about 250 pupils, and there was a steady stream of visitors, many wishing that the exhibition would be open the following day. The flower show was free to all and a handsome display. Many of the plants would be no discredit to professionals. A very instructive lecture was given by Prof. H. L. Hutt, with which many of our local fruit growers and gardeners were highly pleased.

With carefulness and economy, the willing efforts of our directors, the earnest zeal of our secretary, the kindly recognition of our town council, and the solid and financial aid of our provincial government, a society has been built, whose refining influence is seen and recognized by town and country. This year we will give as a premium to every member (in addition to the flowers or fruits), the best, neatest and cheapest horticultural magazine in Canada—THE CANADIAN HORTICULTURIST.—Wm. Welsh.

Kind Words

Many encouraging letters are being received from our subscribers concerning the improvements that have been made in THE CANADIAN HORTICULTURIST within the last year. A few of those just received are here given. Naturally, it is encouraging to us to receive such letters. Here they are:

"Our society is well pleased with THE HORTICULTURIST, and our members wish it every success."—Robert Davis, Secy. Hespeler Horticultural Society, Hespeler, Ont.

"I am delighted with the appearance of THE HORTICULTURIST. It is one of the best monthlies I know of on orcharding and the cultivation of fruit. Not only that, but the information it gives on the marketing of apples is worth everything to the fruit grower. I have given a few copies of it to parties I thought ought to have it."—John Spencer, Henrysburg, Que.

"Here is one dollar as a renewal for your magazine for two years. We are pleased with the improvements and congratulate you upon the able manner in which you advocate the interests of the horticulturists. With best wishes for your success."—R. Jack & Sons, Chateauguay Basin, Que.

Of Interest to Fruit Growers

Every one who grows fruit, either on a large or small scale, will be interested in the advertisement of *The Fruit-Grower*, St. Joseph, Missouri, which appears in our columns. This publication is issued monthly, is handsomely illustrated, and comprises from 32 to 80 pages each month, and all phases of fruit growing are covered. The first four issues of 1907 will be handsome special numbers, the January issue devoted mainly to reports of meetings of horticultural societies, February to spraying, March to gardening and April will be the small fruits number. Every reader of this paper who is interested in fruit culture should take advantage of the liberal offer of the publishers to send *The Fruit-Grower* for three months on trial, absolutely free. Read the advertisement and send your name and address at once, mentioning this paper.

On page 300, Dec. issue of THE CANADIAN HORTICULTURIST, the orchid cuts should have been transposed.

Books For All. We have listed in our book catalog all the popular modern horticultural works, at the most reasonable prices. Send for a catalog. It's free!

The Dominion Government's Cold Storage Proposition

THE proposal of the Hon. Sydney Fisher, Minister of Agriculture at Ottawa, to assist in the establishment of cold storage warehouses for plants and other tender products, will be welcomed by the fruit growers of Canada. While it may not be acceptable in all details, it is a big step in the direction of what is needed. One or 2 private schemes have been presented to the government with requests for assistance, but they were thought to tend towards a monopoly of the business. The proposition of the minister is framed with a view towards elimination of a danger of this kind. The main features of the proposal, as outlined by Mr. Fisher in the House, are as follows:

Contracts with individuals or companies who may wish to establish cold storage warehouses, shall be entered into only for such places as, in the opinion of the minister, may fairly justify the investment or the establishment of such an enterprise. The scale of the investment also shall be such as is justified in the opinion of the minister; that is to say, in some places, a cold storage warehouse which would cost $30,000 may be justified, where one of $100,000 would not. The contract would also indicate the conditions on which the aid would be granted. The 1st condition would be a control of the rates by the government, which are to be charged for the accommodation of the public. The 2nd condition would be that the temperature be maintained at a degree necessary for the proper preservation of the articles intended to be placed in the chamber.

The assistance is proposed to be given in this form: That on the completion of a building approved by the minister, a bonus of 10% on the investment shall immediately be paid, and that in succeeding years after a short term, which has not yet been definitely determined, an additional 20% of the whole investment shall be paid. The minister is inclined to propose payments after the initial 10% as follows: At the end of the 1st year's operation, 5%, and at the end of each successive year, a similar amount, until a total of 30% of the whole cost has been paid. The minister stated that it was not the intention to grant a bonus to any cold storage plant now in operation. It is proposed to provide for official inspection and supervision and the keeping of the buildings.

There are some features of the proposal that are debatable. In the House, some members criticized the proposition. It was pointed out that it would be better to allow the individual to erect cold storage buildings where, in his judgment, it was required, and not to leave the choice of location to the minister. It was suggested, also, that the total amount of the bonus be paid on completion of the building, and not extended over a period of years. E. D. Smith, of Wentworth Co., Ont., was of the opinion that the bonus should be given in one lump sum. Various letters have been received by THE CANADIAN HORTICULTURIST from fruit growers and dealers regarding this question. Some of them are herewith published:

This one was received from R. J. Graham, of Belleville, Ont.: "We have mechanical cold storage that will hold 20,000 bbls. It cost about $30,000, including site and railway siding, fitted with Linde British machinery. We have, also, ice cold storage which we built prior to the mechanical storage. For some things, ice is quite good enough and is very much cheaper than mechanical, but for carrying apples late in the season it is a total failure, for the ice gradually melts and as the season advances the temperature gradually rises in an ice storage unless fitted with mechanical devices and ice salted. For apples that are coming in store in Nov. and going out before middle of March, ordinary fruit houses such as they have in this locality is quite good enough. I understand that the object of the proposed assistance to cold storage construction is to have facilities for taking care of fruit early in the season when weather is unfavorable and this can only be done through mechanical storage. It has been demonstrated that such storages will pay when used exclusively for apples. There are perhaps 30 such storages in New York state located where the apples can be placed in storage the day they are gathered, which is of vital importance where the fruit is intended to be carried any considerable length of time.

"Unquestionably millions of dollars' worth of apples have been destroyed, wasted and lost to the country by not having such facilities available where the apples are grown. With the present improper railway equipment and difficulty in securing cars, large losses are made which cannot be avoided. If the assistance proposed will result in the establishment of a number of mechanical cold storages in the sections where apples are grown it will be certainly beneficial to the country and especially to the owners of the fruit. The only thing about this proposal that seems unfair is establishment of storages in the vicinity of those already built. It would seem to me that if these storages are assisted by the government, then those already established should be compensated in the same proportion where they do similar service in the apple growing districts."

The opinion of F. S. Wallbridge, of Belleville, is as follows: "In most of the apple growing sections, cold storage warehouses for apples are not an absolute necessity. If the assistance proposed were given to frost-proof storage buildings for storage purposes, and let the cooperative assns. put in any apparatus they may see fit, either mechanical refrigeration or ice storage, or even ventilation, I think it would be best. In most of the apple sections, there are not a great many summer apples grown and a very small compartment of the building would answer for cooling any early varieties that the assns. might have. In my opinion it certainly would be more helpful to the apple growers to get assistance in building frost-proof storage buildings than being assisted in putting up cold storage plants which they only require to a very limited extent, as the late fall and winter apples do not require any other storage than the frost-proof storage, and those apples are grown to a much larger extent than the earlier varieties. The trouble that most of our assns. find is in getting a reasonable priced storage to hold their winter varieties until prices are sufficiently high in European markets to warrant sale of them. At the present time such a small price is being offered in the European markets for such varieties as Ben Davis that those apples naturally have to be held until there is a market for them in the latter part of the winter or the early spring. I trust that the Hon. Mr. Fisher means to extend the assistance to assns. that intend putting up frost-proof storages."

J. D. Biggar, Grimsby: "I am of the opinion that the government would be justified in assisting in the erection of cold storage warehouses where they would be of sufficient benefit to the community. I also appreciate the benefit derived from its action in assisting in improving cold storage transportation facilities."

Elmer Lick, Oshawa: "I can see decided advantages in the scheme. The apple grower needs to have his fruit cooled before shipment during Aug. and generally most of Sept. I have never yet known fall apples which were packed at a temperature around 60 or below, to land in the British market in bad shape, that is if they were shipped at once after packing. Our softer winter apples, as well as the fall varieties, need cooling before packing, or immediately afterwards. If the present proposals provide, in some of the best apple sections, a means of doing this at reasonable cost, either by ice or mechanical means, a very good purpose will be served.

"Usually there is little trouble in keeping our later winter varieties through medium of air ventilation. The fact must be remembered, however, that the sooner an apple is cooled to freezing point the longer it will keep. That is a very important advantage of ice or mechanical cold storage. The only question in connection with this matter that bothers me is: Where will the business come from to make it pay? Apples will furnish business for 3 to 5 months. Will there be other business enough to keep down expenses to a reasonable basis? This is a very inviting field for theory, and one rather difficult to practically say how it will work out."

Daniel Johnson, Forest: "Mr. Fisher's cold storage porposals, appear to be a step in the right direction. Ont. fruit growers and farmers have long felt the want of something in that line. It is to be hoped that the government will next season see its way clear to go much further in assisting them. It would perhaps have been better if the government had undertaken the establishment of these warehouses on its own account, and to regulate the rates in the interests of the country."

The Seedless Apple

Frances Wayland Glen, Brooklyn, N.Y.

The report of the committee of the Ont. F.G.A. Convention, held in Toronto, referring to the Spencer Seedless Apple, gave me much pleasure. It is time that quack horticulturists, like quack politicians, were sent to the rear to remain. The great progress made in horticulture during the past 6 years has been from growing varieties, not species. The seedless orange, probably, is a cross of two species, and what we call the navel is a deformity. It is the only seedless fruit that is of any value.

God has set a limit to the propagation of deformed fruits or animals. This fact clearly indicates that the wise horticulturist will follow God's plan and not Mr. Spencer's. It is unjust to those who have rendered such beneficent services to humanity in the crossing of varieties to have some quack notion like the seedless apple overshadow the results of their patient labor. Permit me to return thanks to Professor Craig of Cornell University for his letter in the Nov. issue of THE CANADIAN HORTICULTURIST.

Dairying and Fruit Growing

A large number of the dairy farmers in the vicinity of Colborne and Belleville, Ont., are going in for fruit growing on an extensive scale, and appear to find it a profitable side-line in connection with their dairy operations. While driving through this section recently a representative of THE CANADIAN HORTICULTURIST was surprised to find how extensively the farmers of that section have set out orchards during the past couple of years. It seems that recently large profits have been made on apples in that section, with the result that there has been a regular boom, the reaction of which will be felt by some farmers who, it was noticed, have set out their orchards in very unfavorable locations.

"This is the greatest apple section in the province," said Reeve Alyea, of Colborne, to our representative. "In Colborne alone," he continued, "we have 16 apple-packing warehouses, the smallest of which holds about 7,000 bbls., and the largest 20,000. A new cement warehouse is being built which, when completed, will hold 30,000 bbls. Our farmers let their hogs run in the orchards, where they eat windfalls and wormy apples. In this way, too, the orchard is manured.

"Over 1,000 acres were planted with apples this year. Some dairy farmers and others in the vicinity of Colborne have sold the apples in their orchards this year for from $450 to as high as $1,200, the buyer to do the picking and packing, and the grower the hauling."

Nova Scotia Fruit Growers' Convention

THE 43rd annual meeting of the N.S. Fruit Grs. Assn. was held at Wolfville on Dec. 12, 13 and 14. There was a good attendance. While the meeting cannot be regarded as one of the most important in the history of the Assn., it was quite a successful one. Owing to the good work done at the Dominion Conference of Fruit Growers at Ottawa last March, several questions which usually occupy considerable time, such as the grading, packing and marketing of fruit, did not receive the usual attention.

The address of the president, Mr. John Donaldson, was full of practical information. In it he said that there was an abundant show of blossoms in the orchards last spring, but cool, wet weather prevented good pollenation. A favorable summer was followed by an ideal autumn, but a gale in October blew off a large amount of fruit. The crop was below medium, but the apples were comparatively free of spot with the exception of Gravensteins, which were badly affected, there being only a small proportion of No. 1's. The advantage of having this refuse fruit utilized by the canning and evaporating factories, which used a large amount this year, was referred to by the president among other things.

An interesting address on "Orchard Management," by W. T. Macoun, C.E., Ottawa, followed the president's address. A report of it will appear in our next issue.

The afternoon of the 2nd day was all devoted to spraying, it being felt that this was the most important subject that could be discussed in view of the fact that the Gravensteins had been almost ruined by spot this year. Prof. F. C. Sears, Horticulturist, Agric'l College, Truro, had charge of this subject, and subdivided it into nozzles, pumps, hose, fungicides, lime, insecticides, preparation of the mixture and application of same, so that the whole subject was thoroughly covered. The plan adopted was to have several fruit growers speak on each branch of the subject. The Vermorel nozzle, or a modification of it, was considered the best. It was shown that it was very important to change the disc in the nozzle frequently, as the aperture soon widened by friction, and a coarser spray was the result. The general opinion was that 3 nozzles were as many as could be economically used on each line of hose even on a power pump, while 2 or even 1 was sufficient on a hand pump. No one pump was considered the best. It was generally thought that ¼-inch hose was better than ½-inch, being considerably lighter and just as effective. The complaint was made that hose did not last long enough. A special 5-ply hose was referred to by Mr. Black, Wolfville, as being the most durable, and while a little more expensive, it was much more satisfactory than the hose usually bought. The variability of lime was referred to, and it was shown that it was important to use good lime. As a rule 4 lbs. to the bbl. was sufficient, though more could be used if necessary.

Some arsenate of lead had been used in N.S. this year. There was a discussion on the relative merits of it and Paris green as insecticides. Some had found it difficult to mix, while others were favorably impressed with it owing to its adhesiveness, and the good results obtained. As a poison had to be used with each application of Bordeaux mixture, it was thought that the adhesiveness of the arsenate of lead did not offset the danger from using a poison of its color in consideration of the general carelessness of fruit growers in leaving poisons about.

Dr. Jas. Fletcher, Entomologist and Botanist, Dom. Exp. Farms, who was on the program to speak on "Insects and Insecticides," was called on when the discussion had reached the point of the proper time for spraying, a fruit grower claiming that he had very satisfactory results from only spraying once, and that when the trees were in full bloom. Dr. Fletcher took a very decided stand on this subject, showing that insects, especially honey bees, which visited the flowers, were killed by the poison; that in Ont. it was considered so important not to spray at that time, that a law was in force which prohibited fruit growers from doing so. Not only were bees killed by the poison, but the crop was lessened by the Paris green injuring the pistil of the flowers, thus preventing fruit from setting. He recommended 4 sprayings with Bordeaux mixture, 2 before the flowers opened, and 2 after. All insects could not be controlled by 1 spraying, as they were active at different seasons of the year. The one spraying would control the black spot. Thoroughness in spraying was of the utmost importance. It is an expensive operation and, if not properly done, money was thrown away. Speaking of the San Jose scale, he congratulated the fruit growers on not having it In procuring nursery stock, he advised getting trees from Ont. rather than the U.S., if good trees could not be obtained in N.S., as the Ont. nurseries had their stock thoroughly inspected and fumigated according to law. "Practically all the insects affecting trees in N.S.," said Dr. Fletcher, "can be controlled by spraying."

In concluding, he stated that at many of the meetings he had the pleasure of attending during the last 2 years, many of the important subjects which had come up for discussion at the present meeting, as for instance, "collar rot," had been keenly discussed. He urged the members to keep accurate notes as to all the conditions of soil, weather, location and particularly to methods of cultivation in orchards where trees died from this mysterious injury, so that actual data taken at the time might be available for comparison and discussion at the next meeting, thereby arriving at something definite.

Considerable discussion took place on the No. 2 apple, as defined in the amended Fruit Marks Act. Mr. G. H. Vroom, Dom. Fruit Insp., explained the view taken by the inspectors in regard to this grade. The point not clearly understood by the fruit growers was as to what was meant by "material waste." From Mr. Vroom's statement, it is understood that 80% of a No. 2 grade, providing they are of medium size, may be spotted, providing the spots are not large enough or numerous enough to cause "material waste." A fruit grower should be able to form a fair opinion of what would cause material waste. A question was asked as to whether any apples of a "fancy" grade had been exported from N.S. this year. The statement was made that 800 bbls. had been exported, it being understood that the man who exported them was S. B. Chute, Berwick, N.S. A large proportion of this fancy grade went to South Africa.

The fruit growers of N.S. are very anxious to have a fruit exp. sta. in the Annapolis valley. The matter was discussed at some length, as it has been for many years, and a resolution urging the establishing of such a station will be sent to the Dominion and Provincial governments and to the members of parliament.

A move was made at this meeting to make some town the headquarters of the Assn., where it would meet every year, but this proposition was voted down. It was thought that more good could be done by moving around. It is probable that the meeting next year will be at Berwick.

The exhibition of fruit, though not large, was of good quality It was judged by Prof. F. C. Sears and Mr. W. T. Macoun.

The officers elected for next year are: Pres., John Donaldson, Wolfville; vice-p., G. C. Miller, Middleton; sec., S. C. Parker, Berwick—the same officers as last year. Mr. Donaldson was highly complimented for the manner in which he filled the office during the past year.

A popular meeting was held on the evening of Dec. 13, when addresses were given by Lieutenant-Governor Fraser, Judge Longley-Dr. Fletcher, Prof. Cumming, and Mr. Campbell, the local member. The addresses were more than of usual interest, and delighted the large audience assembled.—W. T M.

Ontario's Sick Little Ones

The 31st year of the Hospital for Sick Children in Ont. work has just closed. It is something to be proud of, and the results, both in its in and outdoor department, compare most favorably with that of any of the large hospitals on either this or the other side of the Atlantic Ocean.

The hospital is not a local institution, but provincial. The sick child from any place in Ont. who can't afford to pay, has the same privileges as the child living in Toronto, and is treated free.

The hospital had last year in its beds and cots 858 patients, 331 being from 231 places outside of Toronto. The cost is 1.37 cts per patient a day, and there were 138 sick little ones a day in the hospital. Since its foundation the hospital has treated 12,120 children. About 8,500 of these were unable to pay, and were treated free.

Next year the hospital will supply prepared food for infant feeding at cost. This will enable mothers at a trifling cost to feed babies properly, and so decrease the great mortality amongst children. Babies under 2 years are now received, so that mal-nutrition cases and those of the digestive organs will be treated.

The Lakeside Home for Little Children, Toronto Island, is the summer home of the mother hospital. It is open from May till Oct. every year, and during this period nearly 300 children are benefited by their residence, Ontario's breezes (the Home receives them from all sides) do much for the little ones who are able to be moved from the main building in the city. About 80 children sleep every night in the open on the balconies of the Home.

A dollar sent to the Hospital for Sick Children is $1 sent on an errand of mercy and nobility—for sweet mercy is nobility's true badge. Please send contributions to J. Ross Robertson, chairman, or to Douglas Davidson, sec.-treas. of the Hospital for Sick Children, College Street, Toronto.

Encourage the Apple

The farmer in the east is naturally looking with some envy upon the bumper grain crops which the farmer in the west gets by merely tickling the soil. He hears of men going out upon the prairie, taking up land, running up a shack, putting in a crop, and then banking good hard money at the end of the year. But if he would look up at his apple trees instead of far away at distant fields, he might be better employed.

The patient, old, gnarled apple tree is bearing gold for him every golden autumn, and yet he lets a great share of it waste upon the ground, or, worse still, deteriorate by improper handling. If he would turn his golden apple into golden dollars he would forget to envy the western novice with his golden grain.—*Montreal Star.*

In this issue, W. H. Brand, of Jordan Station, Ont., draws attention to 3 articles for which he is Canadian agent. He was at the Ont. Hort. Exh. with a "Wallace" sprayer that appeared to be as near perfection as one could desire. "Target Brand" scale destroyer is becoming well established in Ont. Before long, our fruit growers will find it hard to do without it. Kewanee Air Pressure Water Works Systems enable every rural resident to have a full waterworks service and fire protection the same as in the city, with a valuable feature in addition, viz., either hard or soft water can be used. See Mr. Brand's advt. on another page.

The annual meeting of the N.B. Fruit Gro. Assn. will be held at Fredericton on Feb. 14.

Prince Edward Island F. G. A. Meeting

THE 11th annual meeting of the P.E.I. Fruit Grs. Assn. was held in Charlottetown, Dec. 10 and 11. It was profitable and successful. The treasurer's report showed the assn. to be on a satisfactory footing, a balance of some $80 being on the right side of the ledger.

After other routine business, Pres. Burke appointed Messrs. Tanton and Moore judges of the fruit. The fruit show was smaller than usual but a most creditable one for this off-year.

The regular program was taken up minus the addresses of Dr. Fletcher, W. T. Macoun, and others, who were unable to attend. It comprised the president's address—an utteranee which reviewed the situation eompletely, and pointed the way to ultimate success. Later, some of its features will be published. Suffice it to say now, that Dr. Burke thinks the industry far enough advanced to firmly point out some things necessary to make it thrive and prosper. Encouragement was the word of the past, instruction the need of the present, cooperation the desideratum of the future. The president's address was unanimously and cordially aecepted.

Mr. Registrar White then read a valuable paper on "Experienee in Island Horticulture," in which he critieized somewhat facetiously the methods of some of our planters, and deelared that it is not sprays that is so generally needed, but fertilizers. A lively discussion followed, partieipated in by Prof. Ross, Fred. Bovyer, John Newson, John Robertson and J. A. Moore. It was largely eonfined to varieties, and the andienee enjoyed it immensely.

Another session of the assn. was engaged in reeeiving reports, reading eorrespondence and the diseussion of praetieal topics. The report of the committee on prize lists was adopted. The transportation eommittee announced some substantial improvements in freight rates on fruit through the medium of the railway commission, and asked that express companies be also subject to this commission. The committee on cooperation also reported favoring the establishment of a packing, jamming, evaporating and cidering establishment at Charlottetown; and a resolution, spoken to by John Robertson, Inkerman, and Hon. F. L. Haszard, asking the Federal authorities to take this matter up as they did dairying here, was unanimously earried.

The delegates to the Dominion Conference at Ottawa, in March last, presented their report, through the president. The proceedings of this important meeting are already printed and distributed to fruit-men.

On the question of instruction, President Burke annonneed that he had recently seen Commissioner Ruddiek, and that he had become fully eonvineed of the desirability of having good instructors visit orehards everywhere, and intended doing this service to P.E.I. hortienlture. A resolution approving the plan of personal visitation was adopted.

C. R. Dickie, Muddy Creek, made a valuable address on "Cranberry Culture," giving his experience in growing, paeking and marketing this luseious berry. He said that off half an acre he gathered 37 bbls. of fruit this year, and the crop was not extraordinary. Last year cranberries fetched $36 a bbl. in Montreal.

A paper on "Strawberries" whieh, when published, will give individual growers the best information, was read by A. E. Dewar, one of the largest planters in the province. Asked by the chair as to the snitability of Island soil and conditions to the produetion of this favorite fruit, he said: "I am satisfied that we can grow the best strawberries here that America can produce." Mr. Robertson and Mr. Dickie added further information on the subjeet.

The election of officers was then taken up, the president asking to be relieved after long service. John Robertson thought it was impossible to permit him to retire yet; there was nobody who had done so much for the industry and no one else could do so much. He moved, seconded by A. W. Sterns, that the Rev. Dr. Burke be re-elected, and the motion was carried by a standing vote. The president thanked the Association for its confidenee, but he said that next year they must surely find another occupant for the presidential chair. The elections resulted as follows: Patron, His Honor, Lt.-Gov. Mackinnon; pres., Rev. Dr. Burke, Alberton; v.-pres., D. J Stewart, Aitken's Ferry; directors, A. J McFadyen, C. W. Black, C. R. Dickie (Prince), John Johnstone, John Newson, George Auld (Queens), F. G. Bovyer, John Robertson, J. A. Dewar (Kings). Auditors, Franklin Bovyer, A. W. Sterns. The same committees as last year were then struek by the ehair. At a subsequent meeting of the board the old sec.-treas., A. E. Dewar, was re-elected.

A Talk About Apples

In Ont. there are about 225,000 bbls. of apples in storage, according to P. J. Carey, Dom. Fruit Inspr., who reeently was interviewed by THE CANADIAN HORTICULTURIST. He estimates the quantities in the various loealities as follows: Georgian Bay, 15,000; Hamilton, 10,000; Oakville, 2,000; Toronto, 15,000; Whitby, 8,000; Oshawa, 15,000; Bowmanville, 4,000; Newcastle, 10,000; Cobourg, 8,000; Grafton, 10,000; Colborne, 65,000; Brighton, 35,000; Trenton, 15,000; Belleville, 15,000; and Frankfort, 7,000.

In respect to the quality of apples in storage, Mr. Carey said that he believes the Georgian Bay dist. leads, there being at least 75% free from defects. In the other districts there is not much choice. On the whole, the fruit cannot be considered of good quality. There is between 50 and 60% No. 1. Many of the apples are

Your Prosperous New Year

DEPENDS upon the quality of the Nursery Stock you have planted. Make sure of continued success by buying your next season's supply from our nurseries. Our thousands of satisfied customers is a guarantee of its high quality.

THE HELDERLEIGH NURSERIES

E. D. SMITH, WINONA, ONT.

Mention The Canadian Horticulturist when writing

wormy and affected with "ink spot." Never before has "ink spot" or sooty fungus been so bad in this province. Last season seems to have been favorable for its development. The worst feature of the disease is that it will develop in cold storage, a condition that usually checks other diseases.

One feature in apples that will grade No. 2 is worth noting. Mr. Carey said that many No. 2's will give good satisfaction, because in certain sections considerable quantities of apples have been deformed simply on account of insects eating a portion of the surface of the apple around the calyx end. When such apples are cut, they will be found to be sound on the inside.

Last year's crop has been an object lesson for the man who will not spray. Diseases and worms developed more than usual. In many sections of the country, the value of spraying has been demonstrated. Orchards situated side by side, sprayed and unsprayed, have yielded clean fruit in quantities proportionate to the attention that was given to combatting insects and fungous diseases.

SOME PROSECUTIONS

A great improvement has been noticed in the pack by the fruit inspectors, reports Mr. Carey. It is regrettable to learn, however, that there are still dealers and packers who do not conform to the requirements of the law. A number of prosecutions have been made. All of them pleaded guilty and paid their fines. Among them are, in Brighton, W. R. Simpson, F. F. Snelgrove, R. D. Snelgrove, W. J. Snelgrove, O. W. Chatterson and W. Chatterson; in Picton, J. G. Jarvis; in Trenton, W. P. Bonter and F. F. Snelgrove; and in Colborne, J. and R. Coyle. Most of these were first offences; the latter firm however, has been prosecuted 10 or 11 times. Besides the foregoing, complaints have been laid against about 30 others in various parts of the province. Some of these are now being prosecuted, and others will be at an early date.

British Columbia Letter

C. P. Metcalfe, Hammond

The climatic conditions for Dec. are much the same as Nov. Severe winds and rainstorms have thrashed the fruit trees and canes about, breaking off many raspberry and blackberry canes over their supports. In places where summer pruning is not practised, it is advisable to cut the canes back in the fall to 6 or 8 in. of the height you desire to have them the following spring. This strengthens the canes and renders them less liable to break. It is better to leave this 6 or 8 in. on and to recut them again in the spring as they frequently winter-kill at the tips.

Fall planting of fruit trees and canes is considered safe if the soil is dry and well underdrained, but it is better to give them some kind of a mulch and ensure protection for the roots. Strawberries and plants of like nature, that are essentially surface rooted, are better planted in the spring, as they are liable to heave out of the ground when it freezes with the excessive moisture we have.

B.C. has again won the gold medal against all exhibitors at the exhibition of Colonial fruits, at London, Eng., held under the auspices of the Royal Hort'l Society, in addition to several other medals won by exhibitors.

FOR SALE AND WANT ADVERTISEMENTS

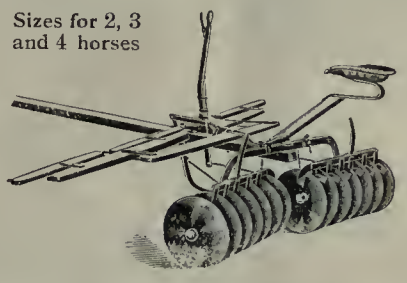
Advertisements under this heading inserted at rate of one cent a word for each insertion, each figure, sign or single letter to count as one word, minimum cost, 25 cents, strictly cash in advance.

LANDSCAPE GARDENING—Plans drawn to scale for laying out and planting parks, cemeteries, public or private grounds. Work supervised. C. Ernest Woolverton, landscape architect, Grimsby.

NOTICE.—The noted Breckon Peach is controlled by R. Breckon, of Toronto, from whom only, or his authorized agents using his bill-heads, stock of this peach can be purchased. A printed description of this peach will be mailed on request.—R. Breckon, 456 Dundas St., Toronto.

Be Independent.—We have a proposition that will appeal to all men interested in horticulture and who wish to be their own employees. Write immediately.—THE CANADIAN HORTICULTURIST, 506-7-8 Manning Chambers, Toronto.

Sizes for 2, 3 and 4 horses



THE BISSELL

has made a great record throughout all Canada. There are good reasons why this is so. **Balanced Right**—Does not bump up. **Improved Plate**—Cuts and turns soil over. **Hitches Well Back**—Easy draught. This Disk has several Imitators but no equal. None genuine without the name BISSELL. For sale by Agents. Manufactured by

T. E. BISSELL - ELORA, ONT.

Ask for Booklet "E"

Mention The Canadian Horticulturist when writing.

Dominion Line

ROYAL MAIL STEAMSHIPS

Portland to Liverpool

CORNISHMAN	Jan. 5th
*CANADA	" 12th
NORSEMAN	" 19th
WELSHMAN	" 26th
*DOMINION	Feb. 2nd

*These Steamers carry all classes of passengers

Portland to Bristol
(Avonmouth Dock)

TURCOMAN	Jan. 10th
MANXMAN	" 24th
ENGLISHMAN	Feb. 7th
TURCOMAN	" 21st

Favorite steamers for all kinds of perishable cargo having fan ventilation, cold storage, and cool air chamber.

G. W. TORRANCE
M. A. OVEREND } 28 Wellington St. E., TORONTO

DOMINION LINE - PORTLAND, Maine.

Mention The Canadian Horticulturist when writing.

SEEDS

Producing the most satisfactory results in the harvest
ARE WHAT WE SELL

Our Vegetable Seeds are grown from selected stocks and are used by the most critical Gardeners and Truckers in this Country.

Our Flower Seeds are noted for their striking colors and large bloom.

Sutton's Specialties Always on hand.

Descriptive Illustrated Catalogue
Mailed Free on Application

DUPUY & FERGUSON

38 Jacques Cartier Sq., Montreal

Mention The Canadian Horticulturist when writing

POULTRY DEPT.

Conducted by
S. Short, Ottawa

The question is frequently asked, "Is there money to be made raising fowls as a sole means of making a living?" To this my answer is, I have known several try it, some intelligent men, and they have, after two or three years, branched out into some other business as a main issue, and continued to keep fowl as a minor branch. There are in this province men who make money with poultry, but they are fanciers and exhibitors—men who are experts in judging specimens of the different breeds which they buy, sometimes at a very cheap figure, from someone who does not know an exhibition fowl. They then exhibit and sell the birds again at a high price. I am doubtful though, if these men make much more than from $300 to $600 a year. Very few of them do that. Again there are fanciers who attend the leading shows, and buy the prize-winners in the breeds that they handle, frequently paying from $50 to $75 a bird. They often advertise extensively the fact that they have these birds in their breeding pens and have eggs to sell from $3 to $5 a setting. Money is made in that way, but only as an addition to an income earned mainly from some other source.

I do not know one person who has made a living raising poultry and eggs for the everyday market. While I make this statement, I do not say that it cannot be done. The market of today is totally different to that of 2 years ago. Then, in the cheapest season, June, fresh eggs, choice, could be purchased for 15 cts; this year the same article sold for 22 cts., and in some cases 25 cts. a dozen. In Dec., also, fresh eggs were 9 to 10 cts. a doz. more than they were two years previous. The main increase is noticeable in dressed fowl. This increase in selling price is somewhat offset by the cost of feeding material, but not altogether. It may be, that now better prices prevail for poultry products, money could be made in this way, but I would advise that poultry raising should be engaged in, in conjunction with some other industry, say, market gardening, fruit raising, bee keeping, or dairying. With either of the first 3 industries, most of the work is in the summer time, when the fowls need or can get along with the least attention, leaving the winter months free to look after the fowl when eggs are the highest price.

With proper arrangements the fowls can use for runs during several months of the summer the orchards and berry patches and will destroy injurious insects and caterpillars. In this way, one has 2 chances of getting a living. Should the crops fail, the fowl would perhaps come to the rescue, and vice versa. In any event, to any one who has an inclination for work of this kind there are few occupations so healthful or interesting as poultry keeping.

Creighton Poultry Yards

High Grade Stock possessing utility and exhibition qualities

Barred Plymouth Rocks and White Wyandottes

Cockerels of either breed, $2.00 each

S. SHORT, PROP. OTTAWA, ONT.

Mention The Canadian Horticulturist when writing

IF YOU HAVE APPLES OR POULTRY TO CONSIGN

we can handle them for you to advantage. If apples are in car lots, write us and we can sell them for you f.o.b. your station

THE DAWSON COMMISSION CO. Limited
Cor. West Market and Colborne St.
TORONTO ——— ONTARIO

DOMINION NURSERIES

ESTABLISHED 1860

Fruit and Ornamental Trees
Shrubs and Vines

WE HAVE NO AGENTS!
WE SELL DIRECT!

Catalogue for 1907, just out, mailed on application

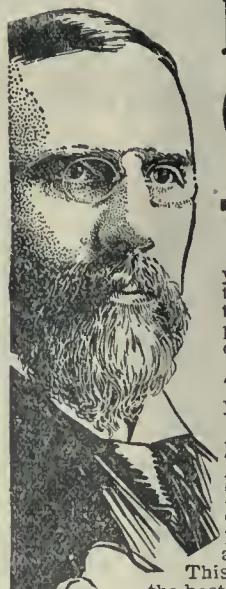
The Smith & Reed Co.,
ST. CATHARINES - ONTARIO

THE BISSELL STEEL ROLLER

With **Three Drums** and **Strong Rigid Frame.** Some improvements are: **Heavy Steel Axle, Thick Heavy Steel Plate. Drums Riveted** up to stand any strain, **Roller Bearings.** Runs like a bird. Full particulars free by mail, or ask your dealer. None genuine without the name "BISSELL." Look out for it. Address

T. E. BISSELL - ELORA, ONT.

Mention The Horticulturist when writing — Write for Booklet "E"



Let Me Sell You a Chatham Incubator —On Time

Do you know there is big money in raising poultry? Do you know there is more money in running a good incubator than in almost anything else you can do for the amount of time and trouble it takes? Do you know my incubator will pay you a bigger profit than any other thing you can have on your place?

Well, all these things are true, and I can prove it. Thousands of people all over Canada have proved it every year for the last five years.

I want to quote you a price on my Chatham Incubator, —sold ON TIME. I want to send you my Chatham book. This incubator book is *free*— I'll send it to you for just a postal card. It tells you a lot you ought to know about the Poultry business—it tells you how to make *money* out of chickens—it tells you how my Chatham Incubator will make you *more* money than you can make with hens—far more, and with less trouble.

This book tells you how my Incubators are made—why they are the best ever invented—and why I sell them ON TIME and on a 5-Year Guarantee.

My Company has been in business in Canada for over 50 years. We are one of the largest wood-working factories in the country. We also operate a large factory at Detroit, Mich. We have the Incubator and Brooder business down to a science.

Chatham Incubators and Brooders will make you money, for a Chatham Incubator will hatch a live, healthy chicken out of every fertile egg put into it, in 21 days.

Will you write for my book today? Do it now while you think of it. Just say on a postal "Please send me your Incubator Book"—that's all. Address me personally.

Manson Campbell
President
The Manson Campbell Co., Ltd.
Dept. F59, Chatham, Ont.

NOTE—I carry large stocks and ship promptly from branch houses at Calgary, Alta., Montreal, Que.; Brandon, Man.; Halifax, N. S., Victoria, B. C., and factory at Chatham.

Satisfied Advertisers

That advertisements in THE CANADIAN HORTICULTURIST bring good results is evidenced by the many letters to that effect that are received at our office. A recent communication from Jas. C. Ford, Mngr., Oakville Basket Co., Oakville, Ont., stated: "Since placing our advt. in THE CANADIAN HORTICULTURIST, we have had many orders that otherwise would not have been received. We consider your columns the best advertising medium we have ever used. Through THE HORTICULTURIST we received recently an order from N.S. and another from Calgary. May THE HORTICULTURIST have success." The Oakville Basket Co. manufacture a full line of packages for handling fruit and vegetables. The experience of last season's basket famine in some districts indicates the advisability of placing orders in advance.

Mr. Jas. C. Ford

Notes from the West

Mr. Philp, Dominion Fruit Inspector in Manitoba, reports that the stock of winter apples held by merchants in the outlying towns and cities in Manitoba are very low. This is another indication that the market for apples in the west is increasing much more rapidly than even the dealers anticipated. Mr. Philp also says that the merchants generally speak very highly of this year's grading and packing. While not yet perfect, the improvement has been so great that the merchants are fairly well satisfied.

The inspector for Sask. and Alta. also reports a shortage in winter stock. To make matters worse, much of the fruit was received too late and shows signs of having been touched by frost. Excellent warehouses are being constructed at Regina, Moosejaw, Lethbridge, Edmonton and Calgary. No doubt shippers in the future will make allowance for the closing in of the season somewhat earlier in the west and will not suffer this unfortunate loss by frost.

Why Has It Not Been Done?

Toronto Weekly Globe.

The College of Agriculture of Cornell University has established a short winter course in horticulture, with especial reference to orchard management. The idea of the college authorities is to interest middle-aged farmers and women, as well as young men, in taking up this course. The attention of our readers was called to this effort some weeks since. Owing to the possibilities of the fruit industry in Ontario and the annually increasing importance of apple growing, such a short course as this ought to be arranged and conducted each winter at the Ont. Agric'l College.

What the farmers and fruit growers of Ont. need is instruction and inspiration in developing this important phase of agriculture. If 25 or more young men, middle-aged men and women would spend a few weeks at the college studying this subject, and the college authorities would exert themselves to make the course a success by advertising for students and planning an attractive and helpful curriculum, the results would be far-reaching, and a material aid in advancing the industry of fruit growing.

Books for Fruit Growers

Plums and Plum Culture

By F. A. Waugh. A complete manual on all known varieties of plums and their successful management. Plum culture is one of the most complicated of fruit specialties, and Prof. Waugh is one of the best known of the specialists, and this work represents in an unusual degree the original discoveries of the author. Nevertheless, the discoveries and practical experience of others have not been disregarded. The book will be found indispensable to the scientists, to the nurseryman and to the cultivator. Illustrated. 391 pages. 5 x 7 inches. Cloth..... $1.50

Systematic Pomology

By F. A. Waugh, professor of horticulture and landscape gardening in the Massachusetts agricultural college, formerly of the university of Vermont. This is the first book in the English language which has ever made the attempt at a complete and comprehensive treatment of systematic pomology. It presents clearly and in detail the whole method by which fruits are studied. The book is suitably illustrated. 288 pages. 5 x 7 inches. Cloth..... $1.00

Fruit Harvesting, Storing, Marketing

By F. A. Waugh. A practical guide to the picking, storing, shipping and marketing of fruit. The principal subjects covered are the fruit market, fruit picking, storing and packing, fruit storage, evaporating, canning, statistics of the fruit trade, fruit package laws, commission dealers and dealing, cold storage, etc., etc. No progressive fruit grower can afford to be without this most valuable book. Illustrated. 232 pages. 5 x 7 inches. Cloth..... $1.00

These are but a few of the books we handle. Write for our catalog, which we will send free on request.

THE HORTICULTURAL PUBLISHING COMPANY
506-7-8 Manning Chambers
TORONTO

ABUNDANT CROPS OF HIGH QUALITY FOLLOW THE USE OF

Tobique Plaster
OR GYPSUM

ALL KINDS OF LAND REQUIRE THIS FERTILIZER

Fruit Growers—Flower Growers and Vegetable Growers

SHOULD USE TOBIQUE PLASTER

SPREAD IT ON YOUR LAWN OR GARDEN
THOUSANDS OF TESTIMONIALS FROM USERS

R. C. Mosher, Manager, Plaster Rock, N.B.

WESTERN AGENT
THE F. G. TERRY CO., 31-41 GEORGE ST.
TORONTO, ONTARIO

Mention The Canadian Horticulturist when writing

EWING'S SEED CATALOGUE
is now ready and we want you to write for one

EWING'S
SUPERIOR SEEDS

have been supplied for the past 38 years to the most critical planters all over Canada. When you sow them you get better results, both in certainty and in quality: THE TRUE ECONOMY

William Ewing & Co.
SEEDSMEN
142-146 McGILL ST., MONTREAL

Mention The Canadian Horticulturist when writing

FERRY'S SEEDS

Represent the survival of the fittest. We have become the largest seed house in the world because our seeds are better than others. Do you wish to grow the most beautiful flowers and the finest vegetables? Plant the best seeds—Ferry's.

1907 Seed Annual free to all applicants.

D. M. FERRY & CO.
WINDSOR, ONT.

NO MORE BLIND HORSES For Specific Ophthalmia, Moon Blindness and other Sore Eyes, BARRY CO., Iowa City, Iowa, have a cure.

Let Us Help You

Let us help you make your planting a success. Our seed experience of over fifty years enables us to give you expert advise on the raising of various vegetables. This you will find scattered through our catalog. You need good seed to start with. We raise and sell only that kind, and guarantee all we sell to be fresh and reliable.

Catalogue Free.
J. J. H. GREGORY & SON — Marblehead, Mass.

GREGORY'S SEED CATALOGUE FOR 1907

USE FOSTER'S POTS

STRONG
DURABLE
LIGHT

POROUS
AND
SMOOTH

Drop us a post card for Catalogue and Price List.

The Foster Pottery Co., Limited
HAMILTON - ONTARIO
Mention The Canadian Horticulturist when writing

KIL-O-SCALE

The original, most popular and most effective SCALE DESTROYER on the market. KIL-O-SCALE combines the two infallible remedies—SULPHUR AND PETROLEUM. Beware of Oil Solutions that will SEPARATE, endangering the life of the tree. Do not be persuaded to buy inferior imitations. Write for circular, telling what users have to say about KIL-O-SCALE. Our 1907 Seed and Implement Catalogue free. Write for it.

GRIFFITH & TURNER CO., 207 N. Paca Street, Baltimore, Md.

Northern Grown Trees

Apple, Pear, Plum, Cherry, Peach, Nut and Ornamental Trees. Small Fruits, Roses, Shrubs, cheap. Specialties: Wismer's Dessert Apple and Mammoth Prolific Dewberry.
Send for free Catalogue—it tells the whole story.

J. H. WISMER, NURSERYMAN
PORT ELGIN, ONT.

Items of Interest

In the report of the election of officers for the Ont. Hort'l Assn. that was published in the Dec. issue, a number of names of directors were omitted. They are as follows: Jas. Guilfoyle, Collingwood; Robt. W. Woodroffe, Woodstock; A. Alexander, Hamilton; and J. T. Rose, Brantford.

The Bowmanville Hort'l Soc. is working hard to exceed this year the last year's membership of 93. During 1906, a number of interesting lectures were given by prominent speakers. Some of these lectures were of such interest to school children that the school authorities allowed the children out early in order to attend the lectures.

The exhibition of colonial fruit at the Royal Horticultural Society's Hall, in London, Eng., during the first week in Dec., attracted considerable attention. A huge display of apples from B.C., which was awarded the society's gold medal, obtained favorable notice in the press, as did a smaller N.S. exhibit, which got the Knightian silver gilt medal. Silver medals were bestowed on individual growers.

The Ottawa branch of the Ont. Veg. Grs. Assn. met on Dec. 1, and elected the following officers for the ensuing year: Pres., Duncan Smith, Ottawa; vice-pres., P. Parissien, Cumming's Bridge; sec., T. Mockett, Billings' Bridge; and director on provincial board, F. W. Williams.

While in London the other day, the writer was particularly interested in the many improvements made by the Spramotor Company in the interests of the fruit growers. The products of the company are now used in nearly all countries, shipments destined for England, Russia, Cuba, New Zealand and far-away India were ready and in progress. Their trade now warrants their catalogue being printed in French, Spanish and German, besides our own tongue. Orders from 10 states and provinces coming in one mail were shown the writer. Their American business at Buffalo now equals the Canadian, although only quarter the age. They deserve credit for their enterprise.

Orchids Now is the time to place your orders for Spring delivery of freshly imported Orchids. **Our prices are very low, quality considered.** Also large stock of established Orchids on hand

CARILLO & BALDWIN
SECAUCUS, N.J., U.S.A.

BETTER FRUIT

Is what every fruit grower should grow.
Is what every fruit dealer wants.
Is what we can tell you how to grow.
Is the only strictly Horticultural Paper in the United States.
Is what you should subscribe for, if you want to know how to realize more money for your fruit.

SUBSCRIPTION PRICE, $1.00 PER YEAR
SEND FOR SAMPLE COPY

Better Fruit Publishing Co.
HOOD RIVER, OREGON
Mention The Canadian Horticulturist when writing

EXPERIMENT

¶Get the habit of ordering Trees, Ornamentals, Shrubs, Roses, Small Fruit Plants, etc., direct from the Central Nursery. We have been shipping our goods to satisfied customers for 26 years, and why? Because they get good thrifty well-grown stock that grows true to name and O.K. Cut out the middle men's profit. Mail your next order, or write for prices direct to us for profit and satisfaction.

A. G. HULL & SON, St. Catharines, Ont
Mention The Horticulturist when writing

Be Particular
about the little things you eat.
Impure salt is just as injurious as impure milk or butter.
There is one salt you can always depend upon as being absolutely pure and wholesome—
Windsor SALT

MAKE MORE MONEY ON FRUIT CROPS

Everyone who grows fruit, whether on a large or small scale, or who has a berry patch or a garden, should be interested in getting the most profit from his crops.

THE FRUIT-GROWER
ST. JOSEPH, MISSOURI

is the only magazine in America which is devoted exclusively to the interests of those who grow fruit. Handsomely illustrated; 36 to 76 pages each month. Tells all about fruit of all kinds—and nothing but fruit—how to market, how to pack, cultivate, spray, prune, how to MAKE MORE MONEY from crops. Sample free. Regular price $1.00, and each subscriber gets choice of one of our Bro. Jonathan Fruit Books—the best in existence.

Three Months Free

We are so confident The Fruit-Grower will please, we will send it three months absolutely free to anyone interested in fruit, on terms noted in Coupon below. We offer Cash Prizes for new subscribers—write for particulars. Write your name and address in blanks below.

Fruit-Grower Co., Box S, St. Joseph, Mo.
I accept your FREE three months' trial offer. At end of three months I will either pay for a year's subscription or notify you to stop paper. In either event there is to be NO charge for the three months' trial.

Name _____
Route or P. O. Box Number _____
Town _____ State _____

John B. Smith & Sons
Limited
Cor. Strachan and Wellington Aves.
TORONTO

Manufacturers . . of . .
LUMBER
LATH
SHINGLES
DOORS
SASH
BLINDS
SILOS, ETC.

Clear Cypress for Greenhouse Work
Mention The Canadian Horticulturist when writing

The Canadian Horticulturist

Vol. XXX FEBRUARY, 1907 No. 2

Varieties of Fruits Worth Growing in Ontario Orchards

ONCE more the time has come when the selection of varieties for the next season's planting is among the questions that confront the fruit grower. To choose varieties that will be most successful and a source of profit, the fruit grower should profit by the experiences of his neighbors, he should observe the behavior of varieties growing under conditions similar to his own, and be governed accordingly.

Personal preference for the quality of a particular variety should not be the only consideration when selecting for a commercial plantation. Local conditions of soil and climate must be studied. The demands of the market to be supplied is important. Interpollenation also must be kept in mind; it is never best to plant an orchard, a vineyard or a small fruit plantation of one variety alone.

Among the men most capable of advising the planter on the choice of varieties are those in charge of the fruit experiment stations of Ontario. A number of letters bearing on the subject from these men and others have been received by THE CANADIAN HORTICULTURIST for the benefit of its readers.

NORTHERN DISTRICTS

The following list is submitted by Mr. J. G. Mitchell, of the Georgian Bay station: "After an extensive trial of 190 varieties of all kinds of plums, I find that there is nothing new that, for profit and general use, can displace many of the well-tried old kinds. The following cover the season: Red June, Washington, Bradshaw, Lombard, Quackenboss or Glass as it is often called, Arch Duke, Yellow Egg, Coe's Golden Drop, Reine Claude and Prune de Agen. German Prune also is a good plum, but rather a poor bearer. Japan plums I condemn on account of their poor quality. In cherries, all leading varieties succeed admirably; still, one year with another, Montmorency and Early Richmond will make most money.

"In apples for profit, cut the list very short: For fall, Gravenstein, a few Wealthy, Blenheim and Ribston; for winter, Spy, King, Baldwin and Mann. Plant all varieties from 3 to 10 feet farther apart than the usual distance for said varieties.

"Cultivate thoroughly; prune systematically; give abundant fertility. If these simple instructions are carried out, the result cannot help but be satisfactory. Acre for acre, for labor and money invested, the orchard will be three or four times more profitable than any other part of the farm."

You Should Have It

THE CANADIAN HORTICULTURIST is a publication which is worthy even a larger circulation than the very wide circle it now reaches. For some time it has been undergoing improvements, till now it can take rank with any monthly illustrated publication as to make-up and quality of paper and press work, while it stands alone in the special field to which it is devoted. Every lover of fruit or plant life will find it not only interesting, but helpful, for it is filled each month with timely articles by the best authorities on each subject, and it very properly is recognized as the official spokesman and intelligence department for the horticultural interests of this and adjoining provinces. We can heartily commend THE HORTICULTURIST to everyone at all interested in that subject.—*Goderich Star.*

THE ESSEX PENINSULA

For the Essex peninsula, Mr. J. L. Hilborn, of Leamington, writes as follows: "The peach is the principal fruit grown here. It would be a very successful and satisfactory crop to grow were it not for the fact that our soil is very dry and that we get very little snow, so that peach trees are liable to severe freezing of the root, causing a serious loss when we get a severe winter. The varieties that have done best are as follows: Dewey, Brigden, Engol Mammoth, New Prolific, Kalamazoo, Crosby, Banner, Golden Drop, Lemon Tree, Elberta, Smock.

"Grapes are grown to a small extent, but should be more extensively planted. There is a splendid opportunity for grape growing, if properly undertaken, in this district. All the leading varieties succeed; but, as we are a week to 10 days earlier than other parts of the province, would recommend planting early varieties such as Moore's Early and Campbell's Early.

"Plums are but little grown. Some of the Japan varieties, however, do well; of those tested, I prefer Burbank and Satsuma.

"What is most needed in this country, so far as fruit growing is concerned, is live experiments to determine how best to successfully winter the roots of trees and vines in seasons of severe freezing and no snow."

THE NIAGARA DISTRICT

For the Niagara District Mr. Linus Woolverton, of Maplehurst, Grimsby, writes: "The peach is the most profitable fruit to grow in the Niagara district. Many persons who have large bearing apple trees of the very finest variety are taking them out to use the ground for peaches. In some cases as much as $200 has been taken for the peaches grown on a single acre; so it is not surprising that such land is held at $1,000 an acre. A large number of varieties are being grown for profit, but the following list has been satisfactory with the writer: Sneed, Alexander, Greensboro, St. John, Early Crawford, New Prolific, Champion, Elberta, Willet and Smock.

"The next fruit in importance is the pear. Of late, however, since bananas have flooded our summer market, the price of pears in Ontario has lowered at least one-half. Still by shipping to the Northwest and to Great Britain, good profit may be made in pear growing. The following list is excellent: Chawbon, Wilder, Gifford, Clapp, Bartlett, Hardy, Box, Howell, Louise, Duchess, Pitmaster, Clairgeau, Anjou and Easter Beurre.

"In cherries, some varieties are being grown on quite a large scale, especially Montmorency and English Morello. The former is in large demand for putting up at the factories, as well as in private families; the latter is later, when cherries are well out of the market. The following is a good list of cherries

for profit: Wood, Knight, Napoleon, Tartarian, Dyehouse, Montmorency, late Duke, Elkhorn, Windsor and English Morello.

"In plums there has been much discouragement, because for two years the crop has been a comparative failure. Last season the Japanese plums, usually noted for their productiveness, failed entirely. But the price of this fruit has been advancing; and the prospect is that the plum crop in the future will be as profitable as formerly, unless good prices should lead to overplanting again. For the Niagara district the following selection is recommended: Red June, Burbank, Bradshaw, Chabot, Gueii, Yellow Egg, Lombard, Quackenboss, Shropshire, Satsuma, Reine Claude.

"Currants, too, of late, are in demand. A few years ago I ploughed up a plantation of two acres of fine Cherry currants; now I am ordering a fresh lot for planting in the early spring. On light soils, the black currant is unprofitable; but on clay loam it is more productive. Even the red currant, the most profitable kind, goes too much to wood growth on rich, sandy loam, and on light sand is very subject to leaf blight. Of the red currant we plant Victoria, Wilder, Cherry and Fay.

"Raspberries also are in demand these days. One new variety is proving itself of great value; viz., the Herbert, which was originated at Ottawa. It is hardy as well as productive, and the berry is large. I would plant Herbert, Marlboro and Cuthbert."

THE BURLINGTON DISTRICT

The following are recommended by Mr. A. W. Peart as desirable varieties for planting in the Burlington district: "Apples, summer, Astrachan and Duchess; fall, Ribston, Blenheim, Pippins and Wealthy; winter, Baldwin, Greening, King and Northern Spy. Pears, summer, Wilder, Clapp and Bartlett; fall, Boussock, Louise, Duchess (dwarf), Anjou and Kieffer; winter, Josephine, Winter Nelis and Easter Beurre. Plums, European, Bradshaw, Niagara, Imperial Gage, Lombard, Yellow Egg, Glass and Reine Claude; Japan, Red June, Abundance, Burbank, Chabot and Satsuma. Peaches, Alexander, Greensboro, St. John, Early Crawford, Champion and Elberta. Cherries, Early Richmond, Montmorency, English Morello, May Duke and Windsor. Grapes, black, Moore's Early, Worden and Concord; red, Delaware, Lindley and Vergennes; white, Niagara and Moore's Diamond. Blackberries, Snyder, Ancient Briton, Western Triumph, Agawam and Taylor. Raspberries, red, Marlboro and Cuthbert; black, Hilborn, Older and Smith's Giant; purple, Shaffer and Columbian; white, Golden Queen. Currants, red, Cherry, Fay, Victoria, Wilder, North Star, and Prince Albert; black, Naples, Lee, Collins' Prolific and Saunders; white, Grape. Gooseberries, Pearl, Downing and Red Jacket.

"The above fruits are grown on gravelly loam and clay loam soils, well drained. All planting is done in the spring. The bruised, torn ends of the roots of young trees are cut away, and the top cut back to balance the root. They are planted deeply enough for the top of the collar of the roots to be three or four inches below the level surface of the ground, a consideration which is too often neglected. Dwarf pear trees are planted deeper by two or three inches in order that the base of the pear stock may throw out roots and thus reinforce the quince bottom which is rather light. Young orchards are kept cultivated for several years, growing some sort of a crop in them, but always leaving room for horse cultivators on each side of the trees. In planting young bushes, a great deal of labor is saved by ploughing a deep furrow in the proposed row. To accelerate knitting with the soil, the bruised ends of these should also be cut away. At planting time the soil should be in a fine granular, moist, but not wet, condition. In filling in earth around trees and bushes, leave a depression of 2 or 3 inches. The cultivator will soon level it and young weeds will be more easily checked."

The following letter was received from Mr. W. G. Horne, of Clarkson: "Clarkson has become noted for growing fine strawberries. The principal varieties are the Williams, Sample, Bederwood, Glen Mary, Clyde and Warfield. The Sample and Warfield varieties being pistillate, would have to be planted with some of the other varieties. A great many raspberries are also grown. Of the red varieties there has been none on the market as yet to beat the Cuthbert. Clarkson growers almost exclusively grow this variety. In blackberries we find Snider and Western Triumph the best."

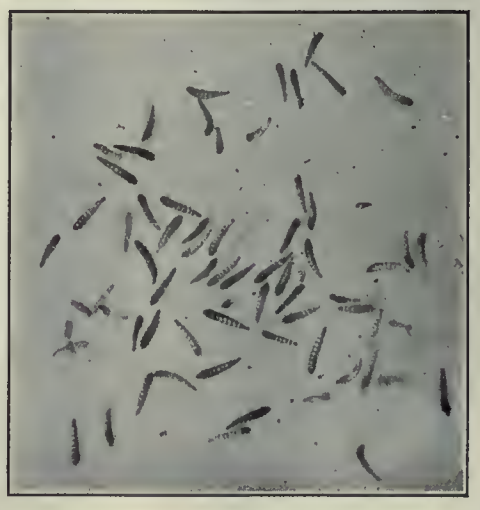
STRAWBERRY VARIETIES

Rev. E. B. Stevenson, Ponsonby: "The best varieties of strawberries after careful trials seem to be the following: New, Cardinal, Mead, Three W.'s, Minute Man, and Wonder; older varieties, Palson's Beauty, Splendid, Ruby, Fountain, Sample, Senator Dunlop, Haverland, and Glen Mary. The past year was one of the best in our experience for prices and yield."

A New Pest of the Apple*

AN insect which up to the present time has not been reported as a serious pest, occurred in such destructive numbers during the past season that it must now be reckoned with by the orchardist. The insect is known as the Apple Leaf-Miner or the Trumpet-Miner of the apple (*Tischeria malifoliella* Clemens). It was first observed in Pennsylvania and described by Dr. Clemens in 1860. Later its occurrence has been recorded in Kentucky, New York, Illinois, Texas, Minnesota, Michigan, New Jersey, Vermont and Ontario.

The injury is caused by the tiny caterpillars mining in the leaves, making large, brownish patches (Fig. 3). If several of these patches are produced on a leaf, it rolls up and ceases to perform its functions. The mines frequently become so numerous that they run together and form one large blotch. As many as 68 full-grown caterpillars (Fig. 1) have been taken from a single leaf, indicating that originally there were as many distinct mines. The upper branches of the tree are usually more seriously infested and lose their foliage first (Fig. 2). This loss of foliage results in premature, undersized fruit. By checking its vegetative activity, the vitality of the tree will also be more or less reduced.



(1) The Apple Leaf-Miner

LIFE HISTORY

Early in June the egg, which is so small that it cannot be seen with the naked eye, is deposited singly on the upper surface of the leaf. A drop of wax seals it to the leaf. In about six days it hatches and the young caterpillar, without exposing itself to the outside world, bores into the leaf. At

*This warning was sent out recently to Connecticut fruit growers by the Storrs Agricultural Experiment Station. It should be heeded by growers in Canada.

first it makes a narrow channel, but with the increase in the size of the insect and its appetite, the channel becomes wider and a trumpet-shaped mine is the result.

The full-grown caterpillar is not more than a quarter-inch in length. In color it is green with a brown head. It changes to a pupa about the middle of July. After about 10 days in this condition the adult, which is an inconspicuous brown moth, appears.

These moths soon commence depositing the eggs that produce the second brood. The second brood caterpillars are much more destructive than the first. They reach maturity about September 1, when they cease feeding and prepare for winter. After lining the mine with silk they settle down until spring when they change to pupæ. They remain in this condition only a few days when they become moths.

As the caterpillars feed beneath the leaf surface, application of insecticides

(2) A Badly-infested Tree

is useless. The most effective remedy is to gather up and destroy the leaves in the fall. Where orchards are regularly tilled the early spring plowing will be equally effective.

A fully illustrated bulletin by Mr. C. D. Jarvis, giving the life history of the insect will be issued soon and can be secured by addressing The Storrs Agricultural Experiment Station, Storrs, Connecticut.

Central packing houses should be established in every locality where apples are grown, and all the fruit should be sent there to be graded and packed. In connection with the packing house, some means should be used to manufacture the culls into either evaporated fruit or jam. The apples should be delivered just as taken from the trees, graded into No. 1, No. 2 and culls, and be paid for by the barrel or box, according to grade.—A. E. Sherrington, Walkerton, Ont.

The Apple Industry in Ontario and its Future*

A. McNeill, Chief, Fruit Division, Ottawa

IN addition to the west there is another growing market available for the Ontario grower, namely, the market of Great Britain. It has formerly been an axiom of apple growers that Canadian fruit would be acceptable in Great Britain only when there was a failure of the English and European crop. This conception of the British market is not a true one. For a number of years a large quantity of early fruit has gone from Canada to Great Britain, and prices have always been quite satisfactory, and there appears to be no good reason why this market should not continue and, in all probability, increase even in the face of the competition with the apples of the home market. It is quite true that the Canadian apples will not compete with the best early fruit of Great Britain, but there are certain features of the business that are distinctly in favor of the Canadian growers. First, we have an admirable system of ocean transportation and a fair degree of efficiency in the railway transportation. If the early fruit is cooled properly before being packed and then shipped in a refrigerator car, there is almost an absolute certainty of its reaching Great Britain in the best of order. The question, therefore, of losses in transhipment is reduced to a minimum. During the last two or three seasons the cargo inspectors at Montreal and at ports in Great Britain have very carefully reported upon the condition of the apples at the time of shipment and upon arrival in Great Britain, and in no case has there been a serious loss where it would be shown that the fruit was properly started from the orchards.

BENEFIT OF BIG SHIPMENTS

In the British markets the Ontario grower has upon his side the large

(3) Infested with Leaf-Miners

An apple leaf with both a trumpet mine and a serpentine mine. The latter is caused by a different species and is not so abundant.

brokers and fruit merchants. The Canadian apples reach the brokers and fruit merchants in uniform packages, uniformly graded, and in large quantities compared with English fruit of one or two varieties. This element of uniformity in grading packages and variety will, itself, almost offset all the disadvantages that we have in the matter of transportation. It is easier for the fruit merchants to buy and distribute Canadian apples than it is to buy and distribute the home-grown fruit. The English orchards have the disadvantage of being planted with a great many different varieties, and no two portions of England put up their fruit in the same kind of packages. It is very difficult for the dealer in Great Britain to get the same varieties or the same packages of home-grown fruit twice. This makes all transactions in English fruit a retail affair, and naturally the large sales all go to the Canadian or American product. As compared with the American apples, I quote from the latest number of an English market paper, *The English Grocer*, to show that Canadian apples have a preference of two shillings per barrel, which effectually protects them from any serious competition from states to the south of us.

Taking these two markets then, the markets of the western provinces and the British markets, I see no reason why the present stock of apples should not be sold at good prices if proper means are taken to place them upon the markets.

One word more with reference to this southern division, No. 1. If, then, the market for early fruit is to be a growing one, I should strongly recommend that the growers confine themselves very largely to the early varieties. The Red Astrachan can be shipped from the county of Essex the third week in July, the Duchess the last of July and the first of August; the Wealthy, of course,

*The continuation of an address delivered before the recent convention of the Ontario Fruit Growers' Association and published in the last issue of The Canadian Horticulturist.

somewhat later. Such varieties as these, therefore, should be selected, and this district should apply itself to supplying not only the western provinces, but our own city population in Toronto, Ottawa, Montreal and Quebec, with all the apples they need after the first of August, when we would entirely exclude the American product that now finds its way to our markets. It is unfortunate that the orchards of this district are devoted so largely to Baldwins, Spys and Russets and other winter varieties, inasmuch as these apples come in in the glut months of October and November. If the orchards were composed of the early varieties that I have mentioned, the prices would be much higher than could be realized for the very best winter fruit in any part of Canada.

TOO MANY VARIETIES

The conditions in district No. 2 are somewhat peculiar. Of course, there is no sharp line of demarcation between these districts, and the southern portions of Brant, Oxford and Middlesex may in some years be properly classed as part of district No. 1, but the greater portion of district 2, including the counties of Lambton, Middlesex, Huron and Bruce, and part of Grey, has all the advantages for growing the very best winter varieties of apples. The planting, however, was done in the earlier days. In the selection of varieties there was the greatest latitude. No orchard was considered complete without a dozen or more varieties, which was all well enough for home market or for home use, but rendered the conditions very unfavorable for the commercial market. Every farm, too, had an orchard, very few of a large size, and very few making a specialty of apples; in fact, very few counted it more than a pure side line in their general farming operations. The result is that, though the small orchard predominates, yet the aggregate is a very large number of trees, probably not less than two and a quarter million.

The difficulty comes in in making sales. The large apple operator cannot without extraordinary expense harvest these apples profitably. He cannot send his gangs of men around more than once or twice at most, and yet these orchards would furnish almost continuous picking from the first of September until the close of the season. As a consequence, many of the apples are picked before they are ripe or sometimes after they have reached maturity, and many of them are not picked at all, because they are not in the proper state of maturity at the time the gang visits the orchard. Though the aggregate, of course, is so large, the number of desirable varieties is probably not more than half the aggregate number.

Map of Ontario, showing Four Divisions for Apple Culture

NEED OF COOPERATION

The recommendation which I would make for this district is cooperation in marketing and selling. There is no one who can pick these apples so cheaply or so well as the man who grows them, but he cannot pack them nor market them. He has not enough of any one kind to pay him to do this properly. It can be done, however, by uniting into cooperative associations, which would furnish the packers and the facilities for selling. It is notable that two of the most successful societies in cooperative associations are in this district, namely, Walkerton and Forest, and I cannot help thinking that a very slight encouragement would organize several more associations.

THE CENTRAL COUNTIES

The central counties of western Ontario, marked No. 4, call for some special comment. The altitude here and, consequently, the climate, is adverse to the best conditions for apple growing. Flesherton is fifteen hundred feet above the sea level, nearly a thousand feet higher than Lake Huron, and twelve hundred feet higher than Lake Ontario. Nevertheless, there are many sheltered spots where the apples, even of tender varieties, succeed fairly well, so that it is not surprising that in this district there are probably more than half a million trees. One could not recommend though, the planting of early varieties for commercial purposes. These varieties would be three weeks or a month later than those grown in the southern tier of counties and would come in during the glut months, having none of the advantages of the apples of better varieties and better quality grown in the southern tier of counties. I see no hope, therefore, of a profitable apple business being conducted here, except along the general lines that would be recommended for the Ottawa and St. Lawrence Valleys, district 4.

(Concluded in next issue)

Varieties for New Brunswick

J. C. Gilman, Fredericton, N.B.

Many varieties of fruits and seeds are of little use for general planting in our province. While there are favored localities where a fruit may appear satisfactory, it would not be reliable in others. Some kinds, however, give good returns to the careful planter. Among the apples most profitable are: Duchess, Wealthy, Alexander, Fameuse and McIntosh. These varieties give the best average returns with the least loss in trees. Golden Russet has proved very hardy, and is giving good average crops, but not large ones. Ben Davis did well till the freezing winter of '03 and' 04, when the trees did. Scott's Winter is hardy, but small. Bethel, Dudley Winter, Shackelford, Baxter, Princess Louise, Bishop Pippin or Yellow Bellfleur, and many others are grown in a small way. In some districts they are giving good returns.

In strawberries, we can grow most kinds with success. The Cuthbert is the best red raspberry. Snyder, Agawam and Taylor among the blacks, give good crops occasionally, but this class is uncertain. The leading varieties of gooseberries and currants also do well.

Grafting should be performed with a keen, sharp-bladed knife, so that the vessels and pores of the wood may be cut smoothly and evenly, and the stock and scion brought into immediate and even contact.

When setting out new orchards number the rows and record in a book the name of the varieties in each, and also the name of the nurseryman from whom the trees were purchased.

Fruit Growing in Manitoba

D. W. Buchanan, Director, Buchanan Nursery Co., St. Charles, Manitoba

NOTWITHSTANDING the many failures that resulted from the early attempts to grow fruit in Manitoba, and the general belief which at one time prevailed that fruit growing would never be successful here, it can now be positively stated that considerable progress has been made in the direction of successful fruit culture in the province. Manitoba has been passing through very much the same experience as the border state of Minnesota in the matter of growing fruit. Indeed, the early experiences in Minnesota were perhaps quite as unfavorable as here. The early settlers in that state, who came mainly from the eastern states, brought with them the same varieties of fruits that they had been used to cultivating in their eastern home. Failure resulted from the fact that these fruits were not adapted to the northwestern state in which they had located. Manitoba's early settlers came also from the east, and they made the same mistake of trying to grow the same varieties, with the same treatment and cultivation as they had followed in the east. Minnesota now produces large quantities of fruits, including apples and plums, as well as small fruits, but in tree fruits at least, the varieties now largely grown have been originated in that state. They are home born and bred varieties. The same course will have to be worked out in Manitoba before the best results are attained.

In small fruits, a large measure of success has been already attained in Manitoba. In fact, we may safely say that we have passed the experimental stage in growing many varieties and species of small fruits. It has now been clearly demonstrated that there is nothing to hinder any person from growing all the fruit in currants, gooseberries, raspberries, strawberries, and so on, that will be required for home use. A few large commercial fruit farms, also, have been successfully carried on, but the great scarcity of help and high wages makes it a difficult matter to conduct a small fruit farm on a commercial scale. Help such as is required for this class of work is practically unobtainable. Only adult male help can be had and that in limited supply. Indeed this scarcity of help curtails the growing of fruit even for home use on the farm, as the overworked farmer will not undertake anything that is likely to add to his burden, if it can be avoided.

In currants, gooseberries, raspberries and strawberries, success may be readily attained. All that is necessary is to find out what are the varieties best adapted to the country, and the mode of cultivation best suited to the requirements. It will not do now, any more than it would have worked in the early years, to select at random the varieties grown in the east. Neither will it do to follow the same mode of cultivation as is practised in the east. The necessary knowledge, as to varieties and cultivation, however, is now within the reach of any one who wishes to learn. This knowledge has been acquired and worked out by the untiring efforts of our foremost horticulturists, and has been disseminated by our horticultural societies and in other ways, so that it is not now necessary to start blindly when beginning the work. The knowledge which has been gained as to varieties and best mode of cultivation, constitutes perhaps the bulk of the progress that has been made in fruit growing in Manitoba. When the country becomes more thickly settled, the supply of help will increase, and the farmers will be in a position to give more attention to matters of this nature. Then fruit growing will be more largely indulged in.

There are many varieties of wild fruits, native to various sections of Manitoba, that produce large crops. These include the plum, raspberry, strawberry, red and black currants, Viburnum or high bush cranberry, Juneberry, cranberries (different forms of the low or vine species), cherries, and so forth. Several of these are undoubtedly useful for cultivation, and being native to the country are, of course, perfectly hardy. Some of the wild plums are of good quality, and no doubt in time this native fruit will be greatly improved. The presence of cranberry marshes of wild fruit would also indicate that the growing of this fruit may become an important industry in time. Some of these wild cranberries are of extremely fine quality. So far, we know of no attempt to cultivate the cranberry. The Viburnum, or so-called "bush cranberry," which is indigenous to this region, also is a useful fruit, though not as valuable as the true cranberry. It does well under cultivation, and we have occasionally seen these bushes growing in the settler's garden. The bush cherry is also very productive under cultivation, and is promising.

In tree fruits, the work is still in a more or less experimental state. Experimental work has been confined mostly to apples and plums. A few cherries have been produced and one pear tree reached the fruiting stage, but these have only been as novelties and not with really any hope of making them a profitable feature. The only plums that are of any value are a few of the very earliest ripening Americanas. Some success has been had with plums of this class. The future of plum growing lies in the direction of improving our native stock, which combines hardiness with the early ripening habit. Most of the named varieties of the Americana class of plum do not ripen early enough to make them safe here, even if they possessed the necessary hardiness.

Young Stock on Grounds of Buchanan Nursery Co.

Apples have been experimented with largely and, considering the class of stock with which it has been necessary to carry on the work, we have no reason to feel disappointed with the measure of success attained. In fact, when an occasional tree proved fairly hardy from among the large number of trees brought in from the east or the United States, it made the outlook hopeful for a time when home-grown trees, propagated from these few hardy specimens, could be obtained. Plants and trees, like persons or animals, certainly show special characteristics. It is true that an occasional tree will show a hardiness and vigor of constitution quite in advance of others of the same variety. The hope of the future, therefore, lies in propagating from these exceptionally hardy specimens. We will undoubtedly produce new varieties of apples and hybrids, just as they have in Minnesota,

that will be hardier than anything we now have, and be well worthy of cultivation. A few of these new seedlings have already been produced. In the meantime, we have a number of trees in bearing scattered throughout the province, of the varieties which have proved the most successful in Minnesota. There are orchards varying from a dozen to over 100 trees which have fruited in a single year. Propagation from the hardiest specimens may now be carried on both by grafting and by growing seedlings. We now have, therefore, a solid basis upon which to work. Progress will be more rapid than in the early days, when all stock was brought in.

In 1901, an exhibition of tree fruits was held in Winnipeg, at which there were 47 exhibits of standard apples, eight of hybrids and 18 crabs, besides a number of seedlings, grown in the province. The named varieties, also, were grown in Manitoba. Since that date, considerable progress has been made and an exhibition now would certainly show a vast increase in the entries.

Commercial Varieties of Fruits for Nova Scotia

Prof. F. C. Sears, Truro, Nova Scotia

THE question of varieties is so much a personal matter that it is difficult to map out a list of varieties which shall represent everyone's preferences. Still, the bulk of Nova Scotia plantings are confined within comparatively narrow limits as to varieties and if there can be said to be a well-defined "tendency" of late years, I believe it is in the direction of sticking to the old sorts and being more chary of the new and untried.

The list of apples which most often appears as the "best 10 varieties for commercial planting," is probably the following: Gravenstein, Ribston, Blenheim, King, Baldwin, Spy, Golden Russet, Stark, Fallawater, and Nonpareil. But, in the newly set orchards Gravenstein does not often appear, partly because most growers feel they already have enough of this variety and partly because a good many trees of this sort have gone out with collar rot, or kindred diseases. The writer believes this latter reason need have but little force if orchards are carefully and consistently managed; if they are carried along systematically from year to year as regards culture, not overstimulated, and if a good corn crop is sown each year to check the trees up for winter.

There is no question that of the varieties mentioned above the Blenheim is just now by far the most popular. Its sturdy growth and freedom from black spot in both leaf and fruit, and the fact that there is so little waste in packing the fruit have combined to bring it to the front.

Comparatively few early apples, ripening before the Gravenstein, are grown; not enough in the writer's opinion. The most popular would be Yellow Transparent, Duchess of Oldenburg, Red Astrachan and Williams Favorite. Other autumn sorts that are quite largely grown are Alexander, Wolf River, and Wealthy. Wagener and Ontario are *par excellence* the popular sorts as fillers, though Ben Davis is also set for this purpose, while McIntosh, Hubbardston and Rhode Island Greening all have their friends and *ought* to have more.

Coming to pears, practically the only varieties grown commercially are Clapp's Favorite and Bartlett. The liability of the former, as grown here, to rot at the core makes the profit from it somewhat problematical, though it succeeds more generally than even the Bartlett.

Burbank Plum Tree Headed-in
Hillcrest Orchards, Kentville, N.S.

Nova Scotia can grow excellent Louise Bonne, Beurre d'Anjou, Beurre Hardy, Sheldon, Boussock, Flemish, and Vermont Beautys. On the whole, commercial pear growing is but little practised, partly because pears do not, as a rule, succeed so well here as they do in Ontario and parts of the United States, and largely because apple culture is found so much more profitable.

The list of first-class market plums is a long one, but is confined largely to the *Prunus domestica* class. Burbank and Red June among the Japanese have proved very satisfactory with some growers. Shiro and Apple are promising, especially the former. But for the most part it is the European varieties that are grown. The best 10 commercial sorts would probably range about as follows: Washington, Bradshaw, Grand Duke, Reine Claude, Yellow Egg, Monarch, Lombard, German Prune, Imperial Gage, and Shropshire Damson.

Spring planting is followed almost altogether, as our winter conditions are too variable to make fall planting very sure of success. From my experience in the government model orchards, I would never use manure in the hole at planting time. During the first year or two we sometimes put a small quantity of manure in the hole after the tree had been set and the roots covered, in cases where the soil did not seem to be rich enough. But we found that this comparatively large quantity of fertilizer (and that too in a form which would only become gradually available) tended to induce too much and too late a growth, which often resulted in winter-killing. Since then we have usually been careful to use the surface soil about the roots and occasionally to scatter some manure over the surface about the tree.

In all cases we have reserved a strip along the tree rows, beginning at eight feet in width and increasing year by year, for the exclusive use of the trees. I am strongly of the opinion that the growing of a crop right up to the trees (particularly a potato crop, which requires late culture and the digging of which amounts to another later cultivation) is to be condemned as too likely to induce late growth in the trees. This strip we cultivate every week or 10 days till July 1, and then sow a leguminous cover crop, usually crimson clover. With these two—good culture and a cover crop of this kind—we can usually get all the growth necessary with but little manure while the trees are young.

The operation of grafting should be so contrived that a permanent and considerable pressure be applied to keep the surface of the cut places closely together.

Varieties of fruits recommended for planting in Prince Edward Island and British Columbia are mentioned elsewhere in this issue in letters from the regular correspondents of THE CANADIAN HORTICULTURIST.

The Western Horticultural Society

George Batho, Secretary, Winnipeg

THE genesis of organized horticulture upon the Canadian prairies has not, so far as I am aware, been carefully recorded and preserved as a matter of accurate history. Enough is known, however, to warrant the statement that it is upwards of 25 years since the earliest beginnings were made. A society was then formed in Winnipeg that was to devote itself especially to the encouragement of tree planting. The life of this organization was brief; but it was followed in 1884 by a new society, which in turn was succeeded by two or three later associations that, one after the other, came into and went out of existence.

In 1895, the market gardeners of the Winnipeg district, to the number of 17, met and formed what has since grown into the Western Horticultural Society. At first, this organization was purely professional; but, later, provision was made for the admission of amateurs. Gradually the conclusion was reached that the society would be more widely useful if it held fewer meetings. Instead, it sought to gather the experience of horticulturists scattered farther afield, and then to present this to the public in printed form. In pursuance of this policy, the papers read before the society, since the year 1896, have been published in the form of reports and given wide distribution.

Mr. W. G. Scott
President Western Horticultural Society.

On account of the scattered membership, the meetings for some years past have been held but once a year, an attempt being made to hold a good convention at a time when people living at a distance would be able to reach Winnipeg on a reduced railway fare. The advantage of this will be evident to anyone who observes that the membership of the society is scattered over Manitoba, Saskatchewan and Alberta, that quite a number of the most enthusiastic members have to travel some hundreds of miles if they wish to attend these gatherings.

For a number of years an annual free distribution of plant premiums has been made to the members, an attempt being made to constantly introduce to the general public a few reliable and desirable plants that have not become as widely known as they should.

Much good has also been accomplished by the careful compilation and periodical revision of a list of trees, shrubs, and so forth, to be recommended for planting in the prairie provinces. Those who remember that the horticulture of the Canadian west is entirely different from that of the eastern provinces, or from that of British Columbia, will understand how valuable to the settler have been these lists, which have been published as widely as possible in the agricultural and general newspapers of the country, as well as sent out to members in pamphlet form.

The present membership of the soci-

A View of the Carnation Exhibition in Toronto

The American Carnation Society held its Annual Convention and Exhibition in Toronto on January 23 and 24. The Exhibition was the finest ever seen in this country. Thousands of blooms of high-grade carnations were shown. One firm alone sent 8000 blooms.

ety is nearly 200, but as it has only been within the past few years that the public of the west has been turning its attention to the subject of gardening and home adornment, and as the interest in horticulture is bound to develop as better and more comfortable homes are evolved, it is safe to predict a much larger membership in the near future.

A brief reference to the horticultural possibilities of the prairies may interest. While we are debarred from growing many species that thrive in more humid and warmer climates, we are still permitted to enjoy some of the most beautiful of the shade trees and shrubs that are grown in eastern Canada; many of the small fruits are reliable and yield abundantly; some success has been reached with hardy apples and other tree fruits; and we enjoy a succession of radiant bloom in the flower garden from May to October.

The Amateur's Greenhouse

DAFFODILS that were planted late in the fall outside, should now be brought inside. To have them in flower for March, the pans or pots should be placed under the benches. Leave them there until the third week in February, then place them on the bench, partially shading the place where they stand; this will give better stems. A little later, move them to the light and keep in a temperature of about 55 degrees. After that, less heat is required to bring them into bloom. Do not give any bottom heat, and keep the plants in a night temperature of not over 50 degrees. Give plenty of sunlight and ventilation.

HYDRANGEAS

It is time to start forcing hydrangeas. Hydrangeas that were grown in pots last summer ripen their wood sooner than field-grown ones. All unshapely plants should be straightened and put into acceptable form before growth starts, by staking and tying where needed. Do the work neatly. When starting to force hydrangeas, place them in a temperature of 45 or 50 degrees. Do not give too much water at first, but sprinkle frequently. After the new growth breaks, increase the temperature gradually until 65 degrees is reached, in which the plants should be kept until flowers commence to show color. Then place the plants in cooler quarters.

MISCELLANEOUS

If you wish good cuttings, your stock plants must have proper attention. Supply plenty of sun and light. A low temperature and wet soil will kill heliotropes and salvias, and the mealy bug will destroy the coleus stock plants if kept in moist atmosphere. Pruning is often necessary to regulate the growth. In propagating, either by seed or cuttings, the best habited specimens should be selected. To materially aid the development of young plants, keep everything clean on the propagating bench.

Azaleas should be given the greatest care. Free the plant of all refuse and dead matter. If they are starting to grow, keep them in a temperature of 60 degrees at night and spray daily. To insure a uniform growth, pinch back the more vigorous shoots.

Fall propagated geraniums should now be shifted into three-inch or three and a half-inch pots and potted firmly in rather heavy soil. Cuttings may be removed from these plants in from three to five weeks. If branches are desired, pinch out the tops of the young plants.

Last Season's Border of Old-fashioned Perennials at Ontario Agricultural College

The early date of Easter this year necessitates a longer period under glass for our early flowered hardy shrubs, hybrid perpetual and Rambler roses, in order to have them ready for this most important floral festival. Bring in your hybrid perpetual roses at once and stand them in a cool house. There is no possibility of immediate root action; and, as the roots and top will start together, it is advisable to wait a week before pruning the tops, so that the work can be more carefully done and the proper number and kind of eyes left on the stem.

Rambler roses require very little pruning. When there are plenty of strong canes, all that is necessary is to cut away the wood that flowered last spring and the unripened tips of shoots. If a mulch of cow manure is intended, wait for two weeks until the roots are active. Before starting to leaf, the plants should be fixed either by tying or bending the canes around stakes.

Palms should be kept dry, especially when the thermometer is down.

EASTER LILIES

Lilies intended for Easter should be on the bench. As is usually the case, they will vary in the headway made. By assorting them into two or three grades, better results will be had from now on. When they are first brought to the bench, they should be partially shaded until the leaves have turned from white to green. At first, they may be kept in a temperature of about 50 degrees. In the course of 10 days, more heat must be afforded, but give it gradually. Probably 60 degrees is best. Great heat will bring the most backward into shape, provided they are furnished with an abundance of active roots. Should you have planted diseased or immature bulbs, it is beyond your power to produce satisfactory results in forcing. Fumigation for aphids should not be neglected, but do not wait until the centres of the plants are overrun with them. As soon as the lilies are brought into the house, fumigate regularly once a week.

Timely Topics for Amateur Plant Lovers

THE month of February is the month of seed and plant catalogs. Most of them this year are well prepared and illustrated. They are interesting not only for the lists of varieties that they chronicle, but also for the many excellent cultural directions that they contain. The amateur should not make the mistake of discarding old reliable varieties for new ones of unknown merit. The professional gardener chooses standard varieties, usually those with the shortest descriptions in the catalogs. The novice selects the novelties.

A Border of Poppies, Sweet Peas and Perennials Worth Imitating

Grown on the beautiful grounds of R. B. Whyte, Ottawa

PLANTS FOR THE BORDER

A list of common border plants for the amateur garden may be of value to our readers. Permanent border plants, spoken of in the catalogs as hardy herbaceous perennials, are a class of plants particularly suited for busy people and their gardens. It is better to purchase plants than to rely on seed, as it takes a long time with many varieties to secure flowering results from seedling plants. When once well established, herbaceous perennials will continue to give splendid results for several years. They require little care and attention. About every second year, some classes may need dividing and transplanting.

One of the first border plants to flower in spring is the pretty little dwarf-growing, white-flowering *Arabis alpina*. It has a bright and effective appearance when flowers are scarce in the garden. No garden should be without one or two plants of *Dielytra spectabilis*, bleeding heart. It is one of the most useful early-flowering summer plants that we have. The German and Siberian species of iris are a splendid class of plants for planting in the garden. They are of particular value in the lazy man's garden. They succeed well in almost any kind of soil if not too moist, and can be had in a great variety of colors. They do not require much attention. Japanese varieties require proper care and attention for best results.

Herbaceous peonies should be included in the list that may be selected, They are almost indispensable for summer decorative purposes. A few plants of the perennial phlox will be useful both for garden decoration and to furnish a supply of cut flowers during the hot summer months.

The old-fashioned columbine cannot be left out. The fact that they are old-fashioned makes them attractive. *Coreopsis grandiflora* gives a bountiful supply of yellow, daisy-like flowers in early summer. *Campanula persicifolia*, Canterbury bells, is hardy, showy, blue flowered, and easy to succeed with. *Gaillardia grandiflora* has a free, continous habit of flowering that makes it valuable. A plant or two of Rudbeckia or golden glow always have a place on the lawn or in the flower border. They make either splendid backgrounds or centre plants.

ANNUALS

One of the prettiest of the countless annuals that are mentioned in the seed catalogs is the well-known larkspur. It has a place in the mixed border. Among plants of the aster family a packet of mixed colors of Semple's branching aster will give the best results. A good sized border or bed of annuals may be made of a packet each of zinnias, marigold, candytuft, Phlox drummondii, sweet alyssum, scabiosa, salpiglossis, balsam, mignonette, antirrhinum, cosmos, ten weeks' stock, cornflower, sweet peas, nasturtium and a few castor oil beans.

THE WINDOW GARDEN

Plants in the window will feel the increased heat of the sun. This will necessitate a close watch being kept for insect pests. The best way to avoid trouble is to try and prevent the pests from making their appearance. Keep all growing plants, such as fuchsias,

geraniums, calla lilies and so on, well moistened at the roots. Syringe or sprinkle the foliage two or three times a week with lukewarm water. It is well to place some weak tobacco water once a week in the solution the plants are syringed with.

Watch for sudden frosts. The hot sun of some winter days often lures the amateur into a feeling of false security and induces him to neglect taking proper precautions against extreme cold weather at night. Should your plants become frozen, place them at once in a corner of the room where the temperature is a few degrees above freezing. Cover them carefully, and keep them in the dark for 24 hours, or until the frost is out of them. If not frozen too severely, they may be saved in this way. Avoid bringing plants that have been frozen into a high temperature. Keep them away from bright sunlight for a week or two after they have been frozen. They will also require less water for a time until root action and growth have commenced.

It soon will be time to start fuchsias into growth that have been resting during the winter. Bring the plants to the light and prune back the tips of last year's growth so as to make a shapely plant. Give the plants more water than they had whilst resting, and place them in a warm position. As soon as the small leaves begin to appear, shake the plants out fairly well from the soil they are in. Repot into the same sized pots, using soil composed of two parts of rich light loam, and one part each of sand and leaf soil, mixed well together. Give the plants plenty of drainage. Water well when potted and not again until the soil shows signs of dryness. Syringe the top of the plants daily. This will help them to break into growth strongly. It also keeps down the red spider, which is the worst insect pest that the fuchsia has.

Plants breathe through their leaves, and consequently require fresh air every day. Keep the leaves free from dust. Wipe them off with a wet sponge once a week. Open a window or door on warm, sunny days, but see that direct drafts do not strike the plants.

SEEDS FOR FEBRUARY SOWING

Seeds of verbenas, lobelias, cockscombs, double petunias and the Vernon begonia may be sown in pots or boxes in the window towards the end of the month, so as to secure large plants for window boxes or hanging baskets. Sowings for bedding-out may be made about the first of March. Seeds of schizanthus and mignonette may be sown for pot culture.

Would you not like to have sweet peas next spring earlier than you had last season? Why not sow a few seeds now in pots or boxes for planting outside when the time comes? Put six seeds in each six-inch pot. By the time you usually sow seeds outside, you will have strong plants three or four inches high. When safe to plant outside, make a trench two or three inches deep, and in it place the plants ten inches apart. When planting, knock the ball of earth out of the pot carefully, and do not disturb the roots.

Pandanus Sanderi

Fred. J. Goode, Toronto

THE plant shown in the accompanying illustration is one of the most recent introductions into the already large family of Pandanus. It is a splendid addition to the list of plants both for table and other decorations where bright and showy foliage is essential. In habit it resembles *Pandanus Veitchii*, with the difference of color in variegation. In *Pandanus Sanderi* the markings are rich golden yellow. In some instances, the centre of the plant will be yellow, which makes it very

Pandanus Sanderi

effective. As a large specimen plant it is probably the best Pandanus grown. Unlike *P. Vietchii*, no starving is necessary to ensure a good variegation. It is a good grower. If kept in a warm and protected part of the greenhouse with ordinary treatment, good results can be expected.

With one or two plants to start, a stock of this very desirable plant can be worked up. The offshoots that grow from the stem of the plant furnish us with the best means of reproduction. These should be cut off close to the stem with a sharp knife. The offshoots should then be potted in two and a half or three-inch pots, using as a compost equal parts of peat loam and sand. After potting, plunge in sand in propagating frame with bottom heat about 70 degrees. In a few weeks they will have rooted sufficiently to be repotted in three or four-inch pots, after which, a shady bench will be the most suitable place to grow them till thoroughly established, when they can be given as much sun as possible. A much heavier compost is better for repotting than the one recommended for striking the cuttings—two parts good loam, one part leafsoil and a little sharp sand.

These operations can be carried on at any time during the year. Overpotting should be avoided, as it has a tendency to coarseness of growth and absence of coloring. The large plant in the illustration is in a 10-inch pot.

Fruit Growing on City Lots

Amateur fruit growers in cities should look to quality rather than to quantity. The best tasting fruit is not always the most marketable. A strawberry of the finest eating qualities cannot be shipped long distances. At home, one can select the varieties that stand for quality, not those that are grown for their ability to keep or to ship.

Even small lots can be used for growing some kinds of fruit. Along the walls fruit trees can be trained and grown so that they will take up but little room. For small areas intensive methods of culture and care must be employed. One method of pruning trees for small lots is the fan system. By this method, the trees are kept low and the branches are trained to grow in opposite directions, all others at right angles to be cut off. This system admits of more trees on a given area and at the same time allows inter-cropping one way between the trees. It also tends to produce better quality and color in the fruit, as the sun has a better chance to do its work. Peaches also can be grown successfully in tubs of 15 inches in diameter. These tubs can be removed to the cellar in late fall where they will be safe during the winter. In cold districts, grapes and other tender fruits may be grown under glass-covered sheds. Glass sheds cost very little and can be used for a variety of tender fruits. City amateurs can afford these things for the pleasure there is in it, to say nothing of the benefit derived from having fresh fruits grown at home.

When building a conservatory, do not allow a carpenter to construct it without consulting an experienced florist.

Cut off all flowers from house plants as soon as they begin to fade.

How to Make a Water Garden

A. H. Ewing, Woodstock, Ontario

LAST winter it was decided that there should be a lily pond. Accordingly a suitable place was chosen on the south side of a clump of trees.

The Beginning of a Water Garden

Adjacent grounds gradually sloped down to it. The form of the pond was laid out in what might be described as a long oval, bent in the middle to the shape of the clump of trees and a little smaller at one end than the other. The total length was about 150 feet and the average breadth about 20 feet. Digging was commenced on April 23, and continued in the spare time that could be taken from the usual spring garden work, with some hours overtime also put in. As the ground was uneven, it was necessary to dig three feet in some places and not more than two feet in others; and the soil taken out was used to fill up the surrounding depressions. The digging was finished on May 14, the labor costing about $60, paying $1.50 a day, and 20c. an hour for overtime.

The city cement sidewalk gang were then called in, and two and a half inch drain tile was laid around the bottom, outside edge, with several lines across all grading to one outlet. About 10 to 12 inches of coarse gravel, unscreened, from the pit was then spread over the whole bottom. Concrete sides were built up and the floor laid, a flange for outlet and overflow being let in at the same time at the lowest point. A three inch pipe, the height of the water level wanted, is screwed into this flange so that it can be taken out when the pond is to be emptied. When finished, the depth of the pond was 18 ins. in the shallowest place and 21 ins. at the deepest. Tiles, gravel, concreting, etc., cost about $500.

The land around the pond was then graded to the top of the concrete walls so that the grass would grow right down to the water's edge. This has a much more natural appearance than if the walls were raised above the land level. Later, some rock work was built along part of the north side and clumps of Eulalia planted, considerably adding to the beauty of the pond.

Fourteen Nymphæas, water lily, four Nelumbiums lotus, and six other aquatics were ordered from Dreer's, Philadelphia. These arrived in due time and were planted in boxes four feet square and ten inches high, early in June. They were very small plants and not much was expected from them; but contrary to expectations, all but one grew rapidly, flowered well and were a great source of interest and admiration until the beginning of October.

The tender lilies, after having been touched by frost, were taken into the greenhouse with a good ball of mud adhering to them, gradually dried, the earth cleaned off by strong hosing and the tubers stored in moist sand. The Nelumbiums were similarly treated.

Drainage is an Important Part of the Work

The hardy lilies in their boxes were later on pulled to the small end of the pond, and the water drawn off. Stout sticks were put across the pond from side to side, corn stalks were crossed on these again, and leaves were piled on to the depth of two or three ft. This, it is hoped, will keep out the frost. In places, however, where there is sufficient depth of water, the hardy lilies may be left in their places all winter. It is only necessary that their crowns be below the ice.

There is no reason why aquatics should not be more grown by all lovers of horticultural pursuits, even by those who have only small gardens. A small pond can easily be dug, and the bottom and sides made water-tight with puddled clay. Concrete is better, of course, but more expensive and not essential. No continuous supply of water is necessary; merely filling up the evaporation is all that is wanted. A good syringing of the plants every evening will do that and be beneficial at the same time.

Lilies will not grow well where a fountain is kept playing or where there is a continual influx of cold water. Some of the Nymphœas and Nelumbiums can be grown even in half barrels, and will do well too, though, of course, they will not have the natural look about them that the pond-grown plants have. There are many varieties of Nymphœa, both hardy and tender, some of them—one might say all of them—are very beautiful; many shades of red, from the palest pink to dark crimson, several shades of blue, some yellows and many whites of various forms. *Nelumbium speciosum*, the best, has large, round leaves standing out of the water with very large, pink flowers and curiously formed seed pods. It is a luxuriant grower and, if the roots are not confined, will take possession of the whole pond. *Cyperus alternifolius*, Cypress grass or umbrella plant, grows well in the pond, partially submerged. *Papyrus antiquorum*, some-

what similar but prettier and taller, is also of easy growth. Some of the wild aquatics and swamp plants are very prettyand well worth growing at the edge

The Water Garden in the Making—The Gang at Work

of the pond, either in or out of the water.

A water garden will become most fascinating, and will well repay the first outlay, needing very little attention when in going order. Many people have natural facilities at hand, the only conditions necessary being sunshine, still, warm water, and plenty of rich soil. Further, where there are stagnant pools of water, it is a hygienic necessity to stock them with plants and fish in order that malaria and the mosquito may be brought to nought.

The best soil for aquatics is rotted vegetable matter from ponds or swamps, or if this is unprocurable, good heavy loam with one-third its bulk of well rotted cow manure. The following are a few hints taken from Dreer's aquatic circular, and they may be thoroughly relied on: The depth of water may vary from a few inches to four feet; all hardy Nymphœas will give better results if only covered by 12 inches of water during summer months. For growing in water two feet or more deep, only the strongest sorts should be chosen. If the water is too deep, construct boxes four feet or more square, 18 inches deep, and place 12 inches below surface. Tender Nymphœas and Nelumbiums should not have more than 12 inches of water above the crowns. When planting dormant rhizomes, they should only be covered with two or three inches of water until they have made their first floating leaf; then gradually increase the depth. By covering with water too deep at first, many failures have resulted. In planting it is merely necessary to push the rhizomes into the soft mud so that they will be just covered.

Hardy Nymphœas may be planted from April to September, the best time being early in May. Tender Nymphœas should not be planted until the weather has become warm and settled, the warmer and more sheltered the place the better. In tanks or ponds they may be planted singly 6 to 10 feet apart; in large ponds or lakes better effects are produced by planting in groups of three or more, 18 inches between each plant. All Nymphœas and other aquatics should be exposed to full sunlight.

The writer firmly believes that there are sheltered spots in Canada, especially in the Niagara peninsular, where the magnificent Victoria regia, or Amazon lily, could be grown if good sized plants were put in, say, about the middle of June. There is a variety now named Victoria Tricken, which is much hardier, of more rapid growth, and which flowers earlier than the original. These can be grown from seed sown very early in spring in a temperature of about 80″, which may be reduced when the leaves appear; or the plants may be bought at planting time. When planted in the pond they require more soil than the Nymphœas, and a larger surface of water for the development of the leaves. The crowns should have about 18 inches of water over them.

The pond described maintained a temperature during the summer of 70″ to 80″, and at times ascended to 85″, the sun being the only source of heat. There is no doubt in some favored spots higher temperatures would be attained.

Vegetable Tuberculosis

Frances Wayland Glen, Brooklyn, New York

Fifty years ago, Dr. Edward Mott Moore, of Rochester, N.Y., a nephew of the great surgeon, Valentine Mott, said to me: "Frank, I wish I had 100 families who would retain me to keep them in health at $50 a year, or a total of $5,000. I would devote myself to them alone. I would endeavor to keep them in health. I would watch their diet, their teeth, their mastication, their liquid foods, their baths, the drainage of their houses, the exercise they enjoyed, their habits as to narcotics and stimulants and their mental and moral conditions. I would see them when in trouble or sorrow, as well as in sickness. I would tell them not to get angry or vexed. I would advise them to be charitable, kind to the poor. In short, to live in harmony with their Creator in heart, mind, soul and body."

His remarks are as applicable to the stock raiser, dairyman or shepherd as they are to the medical adviser of the human being. They are as good also for the fruit, flower and vegetable grower as for any other class. In one respect, fruit growers are in advance of the medical advisers. From my standpoint of observation, I consider that the black spots on our fruit is vegetable tuberculosis. The fruit grower endeavors to prevent the disease rather than cure it. Bordeaux mixture does for the fruit tree what Dr. Moore wanted to do for his patients. Bordeaux mixture kills the germs of the disease before they inoculate the fruit or the leaves which are the lungs of the tree.

In June the Work was Completed

Tuberculosis is transmitted to children by drinking the milk of infected animals. Where do the cows get the germs? Not from the fresh air of the fields, not from the sunshine, not from the rain that falls upon their backs, not from the dew distilled in the air above them; but, from the grasses, leaves, fruits and vegetables that they eat and

digest. This converts vegetable tuberculosis into animal tuberculosis, then it passes from the animal into the human lungs and blood.

In plants, it first attacks the leaves or lungs, then the fruit, then the body; last of all, the circulation of the plant is destroyed. The plant dies from heart failure.

To cure tuberculosis in the vegetable world would mean drainage of swamp soils, dykage of marsh lands, irrigation of all lands by canals, reservoirs, artesian wells, windmills, or by electrical engines with water as the motive power. With well-drained land, well-plowed, subject to a constant supply of water, and with the judicious use of artificial fertilizers, we can quadruple our crops. We can also get rid of tuberculosis and other diseases that now interfere with success on the farm.

Making and Storing Cuttings

I wish to propagate some of the shrubs on my lawn. Can I do so by means of "slips" or cuttings? If so, how should they be made and treated?—W. M., Ottawa, Ont.

Most of the hardy shrubs may be propagated by the use of cuttings. The length of the cutting is governed by the distance apart of the buds, as two buds at least are required. Six to 10 inches is the regular length. When plants are "short-jointed," more than two buds are preferred. When making the cuttings, cut off the lower end close to the bud, and leave the exposed surface smooth and clean. The upper cut may be half an inch or more above the bud. Store them in moss, sand or sawdust over winter and plant in the spring. When planting some kinds of shrub cuttings, or even currant or gooseberry cuttings when the tree form of bush is desired, it is necessary to remove all buds except the upper one so as to prevent the formation of underground shoots.

Proper Time to Sow Seeds

What is the best time to sow seeds in spring, and how deep should they be planted?—W.R., Varennes, Que.

Hardy seeds, such as onion, spinach and lettuce, may be sown as soon as the ground can be worked. Seeds of corn, cucumber and squash cannot be sown until the ground becomes warm. Much depends on the kind of seed and on the physical condition of the soil. Seeds always should be sown in freshly-stirred soil, as they then will be placed in direct contact with moisture. On heavy soils, sow after a rain rather than before it. In soils where a crust forms over very fine seeds, it is advisable to keep the surface moist until the seedlings have pushed through.

One cannot state the proper depth to plant without knowing the kind of seed that is to be sown. Small seeds are usually sown about one inch deep, although celery and some others cannot be planted so deeply. Plant peas, beans and corn from two to four inches deep. Seeds may be sown somewhat deeper in sandy soils than in heavy clays.

Two Months Later—August—the Water Garden Appeared Like This

Phyllotœnium Lindeni

Fred. J. Goode, Toronto

A PLANT of exceptional merit and one deserving of a place in every collection of ornamental plants is *Phyllotœnium Lindeni* (*Xanthosoma Lindeni*). It has all the qualities that go to make a good decorative plant. The leaves are dark green, about one foot long, with well-defined midrib and numerous veins of ivory white. Leaf stems in large plants often measure two feet long. It is a rhizome tuberose, and its native habitat is New Grenada. It is easily propagated by cutting the root stocks into small pieces. These root readily in a good peat loam and leaf-soil with a little sharp sand and broken charcoal.

Phyllotœnium Lindeni

Use two and a half-inch pots. Plunge in bottom heat to ensure success. A little care is necessary at this stage. A dry atmosphere is fatal to the young growth, but do not give too much water. When plants are large enough for repotting, a four-inch pot will be the most serviceable. From this on, a warm greenhouse will be the best place to grow them. Well-grown plants in six-inch pots are excellent for table decoration, but as specimen plants in 14 or 16-inch pans they are most effective and very showy. The plant in the illustration is grown in a 16-inch pan, and is considerably over four feet through. Owing to the very porous nature of the material used for potting, it is necessary to feed the plants during their growing season, the spring and summer. Liquid cow manure with a little soot added is the most beneficial fertilizer.

During winter, heavy syringing overhead and not too much water at the roots will allow the plants to rest. This treatment will ensure good strong growth the following season and will more than compensate for the extra care and attention.

Azaleas Bloom Often

Do azaleas bloom more than once, and what age must they attain before blooming?

Azaleas will grow and flower for years if plants are taken care of during summer. Stand azaleas out of doors in summer in the pots on some coal ashes in partia shade. Sprinkle foliage every day with clear water in summer. Azaleas are mostly imported from Holland ready for flowering. It takes several years to grow flowering plants of azaleas.—Answered by Wm. Hunt, O.A.C., Guelph.

Profitable Varieties of Vegetables for Market

ONE of the most important factors connected with the management of a market garden is the selection of varieties. It is a local matter. Varieties that are meritorious in one district may be useless in another. In choosing, the gardener should know what kind of a variety is wanted and what it is wanted for, and then select a variety that approaches the ideal. Old, well-tried varieties are the most reliable. New varieties, or novelties, should be tested but not grown extensively until proved of value.

List of varieties recommended for the various districts have been prepared for the readers of THE CANADIAN HORTICULTURIST. The selections of Mr. Fred Collins, of Chatham, Ont., for his district is as follows: "In choosing varieties of vegetables we must bear in mind two things; first, the requirements of our market, and second, the varieties adapted to our soil. Some of us in this vicinity neglected the first of these precepts last season and grew some red celery. We knew its superior quality, but the public did not like the color. Anyway, we shall not grow red celery next season. A variety of celery better than White Plum for early market is Livingstone's Snow-White; it is a more attractive celery and of better flavor. Golden Yellow, however, is easily the best of all.

"In tomatoes we grow principally Earliana for early, but for late I would head the list with Matchless. The best general purpose cucumber is the Arlington White Spine; especially is this an attractive table variety, but it answers well for pickles. In all vegetables we have our individual preferences; I would say that the following are the most popular here: Cauliflower, Snowball and Erfurt; cabbage, Charleston Wakefield for early and one of the various Drumheads for late; carrots, Chantenay; onions, Prizetaker, Yellow Globe Danvers, Red Wethersfield; lettuce, Grand Rapids; corn, Premo for early, Evergreen for late; beets, Crosby, Egyptian and Eclipse; muskmelons, Montreal Nutmeg and Osage.

"When planting seed in greenhouse or hotbed, the soil should be well-rotted turf and stable manure, with an addition of, say, four quarts of sharp sand to a bushel of soil. This should be well mixed and sifted. Small seed, as celery, should be sown on the surface and covered either with dried, sifted moss or with a piece of coarse sacking. When germination takes place, the cover should be removed and a partial shade afforded by laying strips of lath at intervals across the bed. Great care should be exercised in watering; for if the soil becomes too dry or too wet during the process of germination, the delicate germ will be injured and perhaps destroyed. Avoid excessive changes of temperature at all stages of growth."

NIAGARA FALLS DISTRICT

The following remarks were received from Mr. Thos. R. Stokes, Niagara Falls South, Ont.: "This is stock-taking time for the manufacturer, merchant and farmer. The successful business truck-grower should possess a record book in which dates of planting

Flat Cabbages

and marketing, amounts sold, prices realized, and so on, are correctly kept. With such a record, it is possible to purchase seeds both economically and intelligently. To avoid previous mistakes, discard unprofitable varieties and eliminate the disappointment of overproduction, with its subsequent glut of the market by this or that vegetable. It is the haphazard growers

Savoy Cabbages

who are responsible for glutted markets, and they say that gardening does not pay. The annual seed catalogs of reliable seed merchants should be carefully read, and new varieties given a fair trial.

"Starting with asparagus, Colossal is the local standard with Columbian on trial in new beds. Brussels sprouts should be grown only in a limited way, as demand is small compared with cabbage; Dalkeith is the variety grown. The same may be said of Kale.

"Wax beans—The round, brittle padded varieties are the only kind to grow here, such as Burpee's Saddle-back. Green beans—Refugee gives best satisfaction. Beets—For extra early, Egyptian; for main crop and pickling, Improved Eclipse. Cabbage—First crop, Early Express, Wakefield; second early, Early Summer and Vandergaw; late crop and sour-krout, Winningstadt, Danish Ball, Chester King, Galt Dutch Savoy, Chester Savoy and Vertus; red, Red Rock. Carrots—Early, Oxheart; general crop, Chantenay, Nantes and Scarlet Intermediate. Celery—Early, White Plume; second early, Golden Paris; late, Triumph and Pascal. Celeriac—Prague.

"In cauliflowers, the best seed and varieties should be grown; cheap seed and late sorts waste money. Plant Erfurt, Whitehead, Snowball, Gilt Edge and Danish Summer. Cress—Extra Curled. Cucumbers—Hothouse, Rollison's Telegraph, Duke of Edinburgh; outdoors, Early White Spine; late and pickling, Evergreen White Spine and Arlington. Corn—Extra early, Peep O'-Day and White Cory; second early, Early Giant; late, Country Gentleman and Stowell's Evergreen. Lettuce—Forcing, Grand Rapids; garden crop, Non-Pareil leads in popularity; Big Boston, Californian Cream and Trianon Cos. Muskmelon—Emerald Gem is the local favorite, followed by Rocky Ford, Osage and Cantaloupe. Watermelons—Cuban Queen and Plunney's Early. Citron—Colorado Mammoth. Leek—Dunand Limited and Musselburgh. Onions—For bunching, White Southport; pickling, Silverskin and Barletta; transplanting, Prizetaker; main crop, Yellow Danvers. Peppers—Hot, Cayenne; sweet, Ruby King. The new Neapolitan established itself as an extra early sweet variety last season. Parsnip—Hollow Crown, Gursney and Elcomb's Giant. Peas—Earliest of All, American Wonder and Gradus lead for extra early varieties, and Telephone, Advances, Hero and Marrowfats for main crop. Parsley—Triple Moss Curled.

"In potatoes Early Ohio is still the leading early variety, although Nought-Six and Michigan are extensively grown; main crop, Uncle Sam, Carmen, Rural New Yorker, Hebron. Pumpkin—For cooking, Sugar; field, Connecticut. Radish—Rosy Gem and Scarlet Turnip for forcing; French Breakfast and Chartiers for summer; White and Red China and Black Spanish for winter. Spinach—Victoria, Bloomsdale, Viroplay. Salsify—Sandwich Island. Rhubarb—Victoria and Johnston's St. Martin. Squash—Boston is the main summer and fall, and Warted Hubbard the leading winter. Vegetable Marrow—Turban and Marblehead. Tomato—For

(Concluded on page 40)

Growing Tomatoes for the Canning Factory

T. B. Rivett, B.S.A., Department of Agriculture, Toronto

TOMATO growing in Ontario is becoming more and more extensive, and has proven so far to be one of the most profitable crops of the farm. Although we have no definite figures to date, yet one cannot fail to see that this industry is on the increase. In 1904, over 1,500,000 bush. were consumed by the canning factories alone, representing a sum farm-value of $326,486. As the consumption increases, together with improvements in canning methods and machinery, the supply naturally will increase also.

There are distributed throughout eastern, western and southern Ontario some 50 canning factories. Of this number 40 make tomatoes one of their specialties, and offer every inducement for farmers to grow them. Of late, however, there is a feeling of dissatisfaction with the price per bushel, which is 25 cents, the farmer on the one hand claiming that 30 cents should be, and is, a moderate price, especially where dangers of early frosts are prevalent; while, on the other hand, the canners claim that 25 cents is not only legitimate, but insures the farmer a fair margin of profit. It might be said, however, that where the farmer meets with exceptional conditions, 25 cents would seem sufficient, but in normal conditions, 30 cents is hardly too much in consideration for the risk which the average grower has to encounter in the general run of seasons in this province.

SOIL THAT IS SUITABLE

The tomato will grow and succeed in a great variety of soils, and in different districts will give different results, on the same kinds of soil. The best results, therefore, will be obtained only by a close study of the soil and its treatment under the prevailing conditions.

The best soil is a clayey loam. Although it is not as early as others, yet it produces a firmer and thicker tomato with a smaller percentage of water, which to the canner is of great importance; for, the larger the percentage of moisture, the greater will be the lack of solidity and the smaller the number of cans to the bushel. The waste in pulp and juice at present commands little value on the market.

The land should be well drained, either artificially or naturally, and if possible, the location should be an elevated one so as to insure atmospheric drainage, thereby lessening the probable damage by light frost. Under no conditions should one try to grow tomatoes in a low, damp locality. Not only do they suffer for lack of drainage there, but early and late frosts will, in all probability, damage them, and fungous diseases, such as wilt and blight, are more likely to be prevalent.

PREPARING THE LAND

It is always best to grow crops in rotation, and this applies equally well to tomatoes. The tomato should be preceded by a hoed crop, and preferably a deep-rooted one. In the fall, after the land has been plowed, a good dressing of well-rotted manure should be applied to the soil and ribbed up. In the spring, this should be thoroughly incorporated with the soil, and a suitable seed-bed prepared for the time of planting.

WHAT IS THE BEST VARIETY?

The question of variety is of great importance, and can be solved only by continued experiment. No variety will give the same results, on different soils and in different localities. Season, climate, treatment and source of seed, all have a prevailing influence on development, product on and time of ripening. One must observe his neighbor's methods and experiment for himself, before he will eventually find the most profitable tomato for his district. The following are those grown in the different sections of Ontario with apparent success: Early—Earlianna, Chalk's Early Jewel, Moore's Early Marvel, Atlantic Prize. Late—Stone, Ignotum, Living-

Field of Beans in the Essex Peninsula of Ontario

The growing of beans is carried on extensively in the Essex peninsula of Ontario, particularly in the counties of Huron, Kent and Essex. This year the industry increased wonderfully. Whole farms were devoted to the growing of this crop. Most of the beans are grown for winter use and are consumed in Canada.

ston's Perfection, Favorite, Matchless, Success, Ruby, the New Queen, Royal Red Wonder, and Marvel.

The great essentials to be looked for in a variety are earliness, size, color, solidity and smoothness, and regularity. The Stone and Ignotum possess to a marked degree all these qualities, except earliness; they are too late, and throughout Ontario are invariably injured by the early frosts. The Earlianna is the best of the earlies, but it is not a good canner, as it lacks is smoothness, regularity, solidity, and contains too great a percentage of water.

GOOD SEED ESSENTIAL

In a measure the future of the tomato plant depends upon the kind of seed. Poor seeds will produce poor plants, and naturally a poor crop. Good seed is essential to success. The managements of canning factories and associations have realized this, and in most cases import or buy their seed from reliable firms, retailing them to the farmer at cost price. This insures the vitality and pureness of seed, but most of these seeds are grown in southern latitudes, the fruits of which are said to require a longer season to mature than those grown at more northerly ones.

Where shortness of season has such a prevailing influence as in Ontario, earliness becomes an essential rather than a factor. It has been suggested that this difficulty may be overcome by the growers growing their own seed. Although this is a good solution of the problem, yet few growers have been able so far to make a success of it. In Prince Edward County, where perhaps the finest tomatoes are grown, this practice is prevalent. The chief failures lie in the mixing of varieties and their choice of fruit for seed.

The farmer who raises his own seed must keep his varieties distinctly apart in order to prevent interpollenation or cross fertilization, and this naturally increases the cost of production. Again, and perhaps the most important, is his choice of seed. Too often he selects promiscuously the choice individual fruits and expects his seed to produce the same. He must remember that prepotency does not lie in the ndividual fruit, but rather in the vine, and that seeds from those that produce the greatest number of uniform and good fruit are more likely to inherit the potent qualities of the parent than seeds saved from plants that here and there produce one or two excellent fruits. If the grower bears these factors in mind, there is no reason why he should not produce and save his own seed to great benefit.

GROWING PLANTS

Every farmer can, and should, grow his own plants. Excellent results may be obtained at a low cost when care and perseverance are practised. The seeds may be germinated in a flat, 18 by 12 inches and three inches deep. The soil should be a light loam. When the seedlings are from two to three inches high, they may be put into another flat, and finally, after they are from four to five inches they may be again transplanted into another flat, this time three or four inches apart. A preferable way is to plant two or three in a strawberry box. In this way they are easily handled and the roots are less liable to be broken.

These operations have to be started in the latter part of February, and artificial heat is necessary. A small number of plants may be grown in the house, but the most convenient method is to use a hotbed. The expense incurred is very slight, and if good manure is used the heat will be found to be ample. Strong, bulky plants are required. Factors, such as crowding, too much heat, and lack of ventilation should be avoided, or spindly plants may result.

HARDENING THE PLANTS

It is a universal practice to harden the plants prior to setting them permanently in the field. This is done in order to moderate the great change from artificial heat to the cold nights and mornings of the spring. All that is necessary for this process is a cold frame in which the plants should be placed for at least a fortnight before planting.

SETTING THE PLANTS OUT

The land should be thoroughly stirred and a good seed bed prepared to receive the plants, which may be planted three by four feet or four by four feet. An ordinary marker, such as for corn, may be used, the plants being inserted at the intersections. Choose a cool day and cloudy if possible. Plant in the afternoon, as this lessens the injuries of drying out of plants and ensures a better catch. In planting, great care should be taken not to injure the roots or break the plants, and the earth should be firmly pressed around base of each.

Cultivation should be started immediately and kept up so as to conserve moisture and to keep down the weeds. It should be stopped when the plants have covered the ground, and render cultivation impossible without injury to the vines.

MARKETING THE FRUIT

Good strong bushel boxes with the grower's name or initials printed on the side should be used, the fruit being picked and placed in these and taken straight to the factory. Although the grower of tomatoes for the factory is not catering to a fancy market, yet he should not for one moment lose sight of honesty. Too often blighted and worthless fruit is packed away out of sight in order to deceive the factory. This method may be beneficial for a short time, but in the long run it is found out and the grower gets in the bad graces of the manager, who will inspect his fruit thoroughly, and will await a chance for retalliation. Honesty is the best policy. If the farmer were to practise this policy and have nothing to do with petty deceptions, he would not only benefit himself but all others with whom he comes in contact. He would aid in placing the tomato-growing industry on a more satisfactory basis.

Starting Early Celery

The seed for early celery should be sown in the hotbed in February. See that the sun does not strike the seed either before or after sowing as it retards growth. Seedlings that have been set back seldom develop properly.

A hotbed for celery should have at least 2½ feet of manure with four to six inches of good garden soil on top. A surface hotbed is better than one in which the manure is placed below ground. If a hole is dug, do not make it more than six inches deep. Water gathers in and destroys the heating power of the manure.

A surface hotbed should be made so that the manure extends one foot each way beyond the frame. The latter being placed in the centre, is filled with six inches of soil, and is made high enough to admit of a six-inch space between the soil and the glass. As growth of plants develops the frame may be raised accordingly. Plants in a hotbed so prepared and well covered at night will stand a heavy frost without injury.

Varieties of Vegetables

(*Concluded from Page 38*)

extra early, Earliana; second early, Chalk's Jewel; late, Ignetum, Dwarf Stone, Royal Red; New Success gave much satisfaction last year, also the Enormous; for pinks, Plentiful surpasses everything in quality, color and yield. In turnips, Snowball, Orange Jelly, Swede, Hall's Westbury, Sutton's Champion and Elephant are most generally grown."

Do not start the hotbed too soon.

Select and buy your seeds early.

Do not buy seeds because they happen to be cheap; get the best.

Careful attention to ventilation of hotbeds is one of the important means of making plants stocky.

OUR QUESTION AND ANSWER DEPARTMENT

Readers of The Horticulturist are invited to submit Questions on any phase of Horticultural work

Oyster-Shell Bark-Louse

Would Gillett's Lye be of value in treating the Oyster-shell Bark-louse?—F.F., Brighton, Ont.

We do not recommend Gillett's Lye as a remedy for the Oyster-shell Bark-louse. As far as we know, it is a soda lye, and we do not think that it would be at all effective. There are two very satisfactory remedies for this insect. The best is the lime-sulphur wash to be applied about the beginning of April. The wash must be properly made and boiled for at least two hours before being applied to the tree. It will usually clear the tree completely of this scale and of any other that may be upon it.

The other remedy is an application of ordinary whitewash. This should be applied in the fall and repeated a second time. The effect of it is that when the scales off in the winter it carries the insect with it. I am not at all sure that it will destroy the eggs of the bark louse, but there is no doubt that the lime-sulphur treatment, if applied in such a way as to completely reach all the interstices of the bark, will kill both scales and eggs. We are intending to carry a further series of experiments with the lime-sulphur wash, and other insecticides in the early spring, and hope to have more information to impart later on.—Answered by Dr. Charles J. S. Bethune, O.A.C., Guelph.

Propagating Apple Trees

Will you please give detailed instructions for the propagation of apple trees by root grafting? C.M.H., Bridgetown, N.S.

Standard apple stocks are grown from seeds, and dwarf apple stocks from ground layers of the Paradise apple. Seeds for standard trees are either imported from France or obtained from the pomace of cider mills. As a rule, fruit growers or nurserymen do not grow stocks, the raising of which is a business in itself. The seeds are removed from the pomace by washing. They are then dried and stored in sand in a cool, dry place until spring. Fall sowing may be advisable in loose, well-drained soils. Spring planting is better adapted to our conditions. The seed should be sown as soon as the ground is in fit condition to receive them in rows three feet apart for horse cultivation, or in drills 5 to 10 inches wide for hand labor. Sow two or three inches deep. Cultivate well, and thin if necessary. The seedlings should grow 8 to 12 inches that season.

In the fall they are sold to nurserymen, who root graft them during the winter. The roots are cut into sections four or five inches long. The lower pieces are discarded. The best ones are selected and whip-grafted with scions of about three buds that have been taken from trees of the desired variety the previous fall and stored. After the union is made, the parts are wrapped with waxed bands to exclude the air. Bands or string should be used that is strong enough to hold the parts for the time being, but, at the same time, weak enough to break when pressed by the growth of the graft. Pack the grafts in sand and store until spring in a cool cellar. Should the cellar be close and warm, the grafts are apt to start into growth, and subsequently rot. In the spring, when the ground can be worked, plant the grafts in the nursery and care for them until two years old, when they may be sold or transplanted to the orchard.

Varieties of Peaches

Kindly name the best early, medium and late peaches for market purposes that may be grown on sandy soil.—F. H., Sarnia, Ont.

Most peaches do best on sandy land. For your section the following varieties probably will give good results: Early St. John, Early Crawford, Fitzgerald, New Prolific, Engol, Elberta, Golden Drop, Kalamazoo and Smock. These are mentioned in their order of ripening, and are yellow fleshed free-stones.

Selecting Nursery Stock

As I intend to buy some trees for planting, I desire some information regarding nursery stock. Will you tell me the points that should be observed when purchasing.—I.R., Burlington, Ont.

When buying nursery stock secure trees of the desired varieties that will give the best possible results. The trees must be true to variety and of a proper age for planting—apples, pears and quinces, from two to three years; peaches, not more than one year from the bud; and so on. Large trees are not always the best. Medium-sized ones are usually more satisfactory. Whether large or small, they should be healthy, thrifty, smooth and well grown, but not spindly. They should possess good roots, and be free of fungi and injurious insects. It is best to avoid trees grown in districts subject to tree troubles, such as peaches from a district where leaf-curl is prevalent or pears from a section where blight is known to exist.

To secure these desirable features in the trees, it is advisable to have a written agreement with the nurseryman to that effect. Allow no substitution of varieties and reject all inferior stock. When convenient to nursery, it is well to inspect the stock and buy directly from the nursery rows.

Treating Freesias

When my freesias are finished flowering what shall I do with them? Can the bulbs be kept and planted next fall?—C.D., Annapolis, N.S.

Give freesias less frequent waterings after flowering, witholding water gradually until the foliage turns yellow. Give no more water. Place pots away just as they are in a dry room or cellar. About the end of August or early in September shake the bulbs from the soil and re-pot them in fresh, rich, loamy soil. Use some drainage in pots. Water sparingly until growth has well commenced. Place in window when potted. Freesia bulbs treated in this way can be kept for years. Plant only large bulbs for flowering.—Answered by Wm. Hunt, O.A.C., Guelph.

Winter Care of Hibiscus

How shall I treat a hibiscus that bloomed freely last fall? Does it need a rest?—B.T., Bracebridge, Ont.

Keep the hibiscus partially dormant in winter. This is done by giving sufficient water to keep the soil barely moist, and by keeping the plant in a cool room or basement in a temperature of 45 to 50 degrees. The pot or Japanese hibiscus likes partial rest during winter as described to flower well in summer and autumn.—Answered by Wm. Hunt, O.A.C., Guelph.

Heating a Forcing House

What is the best system of heating a forcing house for the growing of vegetables?—R.N., Hamilton, Ont.

Forcing houses may be heated by hot water, steam, or, in cases where the house is small, a smoke flue. The two former are the most satisfactory, although much more expensive. Steam averages higher in temperature than the hot water. The heat from steam is distributed more regularly than that from hot water. It heats longer runs, and is better for crooked circuits. It is probable that steam is the most economical source of heat for a large forcing house.

If the reader of THE CANADIAN HORTICULTURIST who asked a question regarding weeds in lawns, will send his name and address, the desired information will be furnished by letter

The Canadian Horticulturist

Published by The Horticultural Publishing Company, Limited

The Only Horticultural Magazine in the Dominion

Official Organ of British Columbia, Ontario, Quebec and Prince Edward Island Fruit Growers' Associations and of the Ontario Vegetable Growers' Association

H. Bronson Cowan, Managing Editor
A. B. Cuttino, B.S.A., Horticultural Editor
W. G. Rook, Advertising Manager
Garrett Wall, Circulation Manager

GREAT BRITAIN

Frank Fletcher, 135 Henrietta Street, Old Trafford Manchester, Eng., Advertising and Circulation Manager

1. The Canadian Horticulturist is published on the 25th day of the month preceding date of issue.
2. Subscription Price 50 cents a year, three years $1.20, strictly in advance. For all countries except Canada, United States and Great Britain add 50c. for postage for each one year subscription.
3. Remittances should be made by Post Office or Money Express Order, or Registered Letter. Postage Stamps accepted for amounts less than $1.00.
4. Discontinuances—Responsible subscribers will continue to receive The Horticulturist until the publishers are notified by letter to discontinue, when all arrearages must be paid.
5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.
6. Advertising Rates quoted on application. Circulation 5,500. Copy received up to the 18th. Responsible representatives wanted in towns and cities.
7. Articles and Illustrations for publication will be thankfully received by the editor.

Our Protective Policy

We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason to believe that any of our advertisers are unreliable, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant we will expose them through the columns of the paper. Thus, we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefits of this Protective Policy is that you include in all your letters to advertisers the words "I saw your ad. in The Canadian Horticulturist." Complaints should be sent to us as soon as possible after reason for dissatisfaction has been found.

Communications should be addressed:
THE CANADIAN HORTICULTURIST,
506-7-8 Manning Chambers,
TORONTO, CANADA

THE TARIFF QUESTION

The hot discussion of the tariff question as it relates to fruit, that has been precipitated by the action of the directors of the Ontario Fruit Growers' Association, in agreeing to confer with a committee from the Michigan Horticultural Society on this subject, may result in good. It serves to illustrate how careful the directors of the association must be in dealing with matters of this kind. This, unfortunately, now, is largely a political question concerning which there is a clear-cut difference of opinion among growers all over the country. Any action that the association may take, therefore, on the subject is certain to bring it into open conflict with a large number of growers and to accomplish but little if any good. The outcome, probably, would be that both political parties would endeavor to gain control of the association, and that would be disastrous.

This whole tariff question, when boiled down, resolves itself into this: Were the United States markets to be thrown open to our Canadian growers, it would enable us, at certain seasons, to dispose of much of our fruit to better advantage than is now possible. On the other hand, were our markets thrown open to the United States growers, it would mean that Canadian growers, particularly those who produce peaches and small fruits, would be at the mercy each year of the growers in any section of the United States where there might happen to be a glut. This would make the position of the Canadian growers very precarious.

While there are advantages in favor of a tariff on fruits, we feel that it is absolute folly for a small number of growers to attempt to have a tariff imposed that would shut southern fruit out of our markets, and particularly our western markets, at seasons of the year when such fruit cannot be produced in sufficient quantities in Canada. The best suggestion we have seen so far is that made by Mr. W. Maclean, M.P., who advocates the establishment of a tariff on fruits and vegetables during only those seasons of the year when they will be of benefit to our growers. This suggestion has much to recommend it. It is reasonable, and a little time spent looking into it more thoroughly than has yet been done would be of advantage.

As regards the directors of the Ontario Fruit Growers' Association, the discussion that has taken place has made it clear that they will need to deal with this subject with the greatest care. They are handling an explosive substance which, if it goes off, may have disastrous results.

THE COLD STORAGE ACT

The cold storage act introduced into the Dominion Parliament by Hon. Sydney Fisher is not drafted in a manner that will tend to encourage the erection of cooperative fruit packing houses by fruit growers and, therefore, is disappointing. It may encourage the construction of such plants by private individuals and thus assist growers indirectly. The benefits likely to be derived, even in this way, however, we fear are not great.

The act provides that only ten per cent. of the cost of the warehouses will be advanced by the government upon their completion. The remaining twenty per cent., to be paid by the government, will be distributed in four annual instalments of five per cent. each. This means that the persons interested in the erection of these warehouses will not receive their final share of the government's assistance until four years after the buildings have been completed.

The object the government has in view, in distributing its assistance in the manner proposed, is commendable, but we fear it will defeat the objects aimed at, at least as far as fruit growers are concerned. What the fruit industry needs is assistance that will offer a strong inducement to growers—who are proverbially slow to move in matters of this kind—to undertake the erection of simple warehouses, provided with ice cold storage for use during only a limited period each year, that will enable them to handle their fruit on the cooperative basis. Unless the assistance thus given upon the completion of the warehouse is equal to at least twenty per cent. of the cost of construction not many growers are likely to take advantage of it. The remaining ten per cent. could be distributed in two instalments of five per cent. each during a period extending over two years. This is a most important matter. Fruit growers will do well to draw it to the attention of their members in the House of Commons.

FUMIGATION METHODS

There is need for a more vigorous enforcement in Ontario of the law respecting the fumigation of nursery stock. The semi-annual inspection by officers of Department of Agriculture is beneficial as far as it goes. It is not enough. Besides the visits of the general inspector, something should be done to ensure fumigation being done when the inspector is not on hand. Many of our leading nurseries can be depended upon to carry out the provisions of the law without government supervision, but there are others who consider the matter one of much trouble and useless—and there are a few nurserymen who boast of their ability to fool the inspectors. To prevent the work being slighted in any nursery, it would be well for the government to appoint a man at each of them to superintend the work during the shipping seasons. This would incur some expense, but nothing to compare with the advantage gained in lessening the spread of San Jose scale and other injurious orchard pests.

A feature of our fumigation laws that is subject to adverse criticism is compulsory fumigation of stock at the border from states that enforce laws at home. It would seem that something could be done to remedy this matter. It is claimed that, while one fumigation may not injure nursery stock, a second one (as is now required at the border) is oftentimes disastrous. Until this is done, however, the condition of affairs at the border could be mitigated by passing a regulation compelling firms on the other side, who desire to do business in Canada, to pack in a separate package those classes of stock that the law require shall be fumigated. As it is now, nursery stock of all kinds is placed in the same package, thus necessitating considerable labor and time in removing the contents and sorting them. A simpler remedy still, but one not so efficient, would be to compel foreign nurseries to write distinctly on the outside of the package the classes of stock that are contained therein. This would facilitate work that is important when one considers that at Niagara Falls, last spring, there entered Canada 504 consignments, comprising 7 full carloads besides 632 boxes and bales—to say nothing of the quantities that entered the country at other points.

It has been suggested that dipping nursery trees in a lime-sulphur wash be substituted for fumigation with hydro-cyanic acid gas. This has much to commend it. Experiments should be conducted at the Ontario Agricultural College or elsewhere to determine its worth.

THE HORT'L SOCIETIES' ACT

On the first of this month the new act governing the horticultural societies of Ontario came into effect. Hereafter, the horticultural societies of the province will work on an entirely new basis. The provisions of this act have been referred to before in these columns but further reference at this time may be in order.

Exception, so far as we know, has been taken to only two of the main clauses. In the past some half-dozen societies have devoted most of their funds to the holding of exhibitions of fruit and flowers at the time of their local agricultural exhibitions and in conjunction therewith. Under the new act this will not be permissible, and a few of the societies are complaining on that account. We still hold that this provision of the new act is sound. Agricultural and horticultural societies were established for two radically different purposes. When, therefore, a horticultural society turns over most if not all of its funds to the holding of an exhibition in conjunction with an agricultural society, it becomes, to all intents and purposes, a branch of the agricultural society. A government grant to horticultural societies would never have been made had it been thought that their funds would revert back to agricultural societies that, also, were receiving government aid. The new act, therefore, does well to lay down the principle that horticultural societies hereafter, must work along the lines for which they were intended.

The second clause to which exception has been taken is the one that stipulates that a society shall not expend more than one-third of its funds in any one line of work. The wisdom of this clause will depend largely upon the manner in which it is enforced by the Department of Agriculture. It may be taken for granted, at the outset, that the Department will not be arbitrary in this matter. Where a society is accomplishing good work, even when its expenditures in one line to exceed the legal limit, the department can be depended on to

to interfere. On the other hand, experience has shown that in some cases cliques obtain control of a society and manipulate its funds largely to their own benefit. This may be done in various ways such, for instance, where the membership is small, by devoting most of the money of the society to the purchase of seeds, bulbs and plants for the members. In other cases, practically all of the money may be diverted to the holding of one large exhibition annually, which often is but slimly attended and at which the prize money is divided among about a dozen exhibitors. There are so many excellent lines of work that societies can undertake, it is desirable that there shall be provision in the act which will prevent any one line being followed to the extreme. We feel that the new act should be given a trial as it is. It will be time enough to demand a change when it has been shown that its various provisions are likely to result in more harm than good to the societies as a whole.

The best features of the act are that it provides for an increase in the grant to horticultural societies, that it abolishes all cause for friction between agricultural and horticultural societies in regard to their grants, and that hereafter the grants to societies instead of being practically uniform from year to year, as in the past, will depend as to their amount, upon the work done by the societies. During the next few years there promises to be a marked increase in the number of these societies in Ontario and in the value of their work.

Along the line of the Michigan Central R.R in southern Ontario the company has planted catalpa trees. Work of this kind is to be commended. While it is done by the company with a business view it tends to beautify that portion of the country. As it will ulitmately furnish posts and ties for the railway, it will help to check the rapid deforestation of southern Ontario and other parts of the province that now is going on and is to be regretted. Although the planting of these trees is in only an experimental stage, there are many districts where it would be advisable for the C.P.R. and the G.T.R. to do likewise.

Fruit Growers See Minister

Objection was urged to the action of the Ont. Fruit Grs. Assn. by a deputation on Jan. 24 before the Minister of Agriculture in Toronto. The action was also resented of the assn. in appearing before the tariff commission last summer without the authority of the fruit growers of the country.

The delegation claimed that the provincial assn. did not properly represent the fruit interests, also that they have not authority to act in the matter, as their powers are educative and not legislative. The minister promised to look into the matter.

There were present A. H. Pettit, H. L. Roberts, N. Cossitt, J. A. Livingston, Fred Henry and J. E. Henry, of Grimsby; W. B. Bridgeman, T. H. P. Carpenter, J. Thompson, E. M. Smith, W. M. Orr, I. Vanduzer, Winona; T. Lewis, Bartonville; J. Webster, Stony Creek.

At a meeting of the directors of the Hort'l Pub. Co., Ltd., held in the offices of the company, Toronto, Jan. 23, reports were presented that showed that the company has been making satisfactory progress. Great growth was shown in the case of both THE CANADIAN HORTICULTURIST and *The Canadian Florist*, the 2 publications owned by the company. The following board of directors was elected: Messrs. W. H. Bunting, St. Catharines; J. H. Dunlop, Toronto; A. W. Peart, Burlington; H. Jones, Maitland; Elmer Lick, Oshawa; Hermann Simmers, Toronto; and H. B. Cowan, Toronto. At a subsequent meeting of the directors, Mr. Bunting was elected president, Mr. Dunlop, vice-president, and Mr. Cowan, sec.-treas.

Prince Edward Island Letter

Rev. Father Burke, Alberton

THE great question of varieties of apple trees comes up at every convention. Some hold to its paramount importance for successful orcharding, with tyros in the business, at least; others make the broad and proud boast that Prince Edward Island can grow well all the apples which flourish in the northern temperate zone. Senator Ferguson, who *does* as well as *says*, is now ready to get up and make this latter assertion. Still it is just possible that some varieties do better here than others, generally speaking. In special situations and when well fertilized and handled, most apples, we believe, can be grown successfully.

Take the early varieties. No place can grow the Yellow Transparent to greater perfection. They are hardy and fruitful and of the best quality for an early apple. Then, following them, the Red Astrachan and Duchess grow and bear profusely. Alexander and Wolf River, its close parent, cannot be grown better anywhere; and we grow Fameuse, McIntosh Red, Canada Red and Baxter, just as well. We like to believe, too, that we can outdo Nova Scotia in its favorite Gravenstein. Certainly ours are delicious apples —large, luscious, well-colored and longer keeping than the Annapolis Valley fruit.

In winter sorts we can succeed in Spys, Kings, Russets, Ribstons, Starks and Ben Davis. Some think the Baldwin is not among our successes; others say we can grow excellent Baldwins. One thing sure, we have had considerable winter-killing of this stock. But a few winters ago, when Nova Scotia suffered severely in its Gravensteins and Baldwins too, if I mistake not, peculiar weather conditions obtained which may not recur in a lifetime.

We have Robertson's "Inkerman," too, which will do well and is a much better keeper and finer apple than it gets credit for being in some quarters. It is a root growth from a standard tree planted by Mr. Robertson when he started out orcharding away back in the fifties; whilst it must have had a place in the extensive nomenclature of the past, it cannot be placed by our present day pomologists, all of whom have been asked in vain to identify it. Now it carries the name of Mr. Robertson's farm and nurseries, "Inkerman." He has propagated great numbers of them and his heart is more completely in it than in any other island apple.

We have another species here which Mr. McRae, of Pownall, has brought before the association and country, and which was produced much after the way of the Inkerman. It is called "Dodd," because it was an old English gardener of that name that originated it. It is a pretty apple, and of fairly good quality; it will not keep like the Inkerman, however. These two apples are all that we can call peculiarly "Island apples." We have the old French Pippin—a link binding us to Acadian days.

The whole nursery question came up at our late meeting as vital to the fruit industry. As, however, the representative of the Ontario firms could not get over, we did not take any decided action. That something must be done to secure us against nursery frauds, all believe; and even if we admit poor planting and handling in many cases, there is still ground enough to educate offhand many sellers of stock from without who have victimized the people awfully. I will return to this matter in my next.

Important Meeting of Fruit Growers

AMONG the questions discussed at a meeting of the directors of the Ont. Fruit Growers' Assn. held in Toronto, Jan. 8, were the tariff on fruits, substitution of nursery stock by nurserymen, and the cooperative movement among fruit growers. A resolution was passed appointing a committee to confer with the Michigan Hortl. Soc'y, should they ask for it, regarding the recent resolution of the Michigan Soc'y advocating a reciprocal interchange of fruit products between Canada and the U.S. The personnel of the committee is: Robt. Thompson, St. Catharines; J. L. Hilborn, Leamington; and Elmer Lick, Oshawa. When the resolution was passed, the Board had not received any direct communication from the Michigan Soc'y asking for an expression of opinion regarding the matter. The feeling of the Michigan Soc'y became known to the Ont. Assn. through the press. The committee was instructed, therefore, not to act until a definite request had been received.

The resolution and discussion that followed was the result of a motion that had been drafted by W. L. Smith, of Toronto. Not being able to be present, Mr. Smith had asked Alex. McNeill, chief of the fruit division, to present the motion. Mr. McNeill, in the discussion, favored free trade. He said that such was not likely to be for many years yet, but that the idea was good. He pointed out that the U.S. fruit exports amounted to less than 1% of the production. In the near future, he said, the U.S. is going to be an importing country. When that time comes, free trade in fruits will be of value to Canadian growers. Mr. McNeill mentioned in particular the value of free trade to the growers in the counties bordering Lake Erie. Should the tariff be removed on both sides of the line, the future would see steamer loads of fruit leaving Canadian ports every night, and landing their cargoes the following morning at U.S. ports. The geographical features of the U.S. immediately south of Lake Ontario are not conducive to successful fruit culture near large cities that are located on and near the lake shore. The fruit area of that section of the U.S. lies some distance from those markets. For this reason, in the event of free trade, growers in southwestern Ont. would have the control of that market. This eventually would transform that portion of Ont. into one large fruit and truck garden.

The other side of the question was discussed in a practical manner by A. W. Peart, of Burlington, who contended that free trade would be an injury to the industry in this country. The balance of trade between the two countries is against Canada. In the U.S. there are approximately 10 acres of fruit to our one. There the cost of production is less. Were the tariff doors open, American growers could, and would, flood our markets. He took the view, also, that the directors of the assn. did not have the right to discuss such a subject. Other views of Mr. Peart's may be found in another column of this issue.

An opposite view was taken by A. A. Wright, M.P. for S. Renfrew, who said that Canada wants cheaper fruit and fruit for a longer period in the year. The market of the west is great and it, in particular, wants cheap fruit. By having cheaper fruit, more people can be educated into the habit of eating fruit; and when they acquire the habit, three times the present quantity will be consumed. Geo. A. Robertson, of St. Catharines, said that Canada is big enough to take care of itself, and that Canadians should have the Canadian market.

It was finally decided that the resolution should not actually approve of the stand that

was taken in Michigan. It simply appointed a committtee to confer with the growers there in regard to the matter. Incidentally, it pointed out that Canadians are anxious to participate in the good feeling suggested by the Michigan resolution, and that such should exist between growers in both countries.

SUBSTITUTION OF NURSERY STOCK

An animated discussion took place on the substitution of varieties by nurserymen. It was thought that nursery stock should be guaranteed true to name by law. A committee was appointed to draft a scheme regarding the matter, the personnel being Geo. A. Robertson, Robt. Thompson, and W. H. Bunting, all of St. Catharines. Nurseries should be held responsible for guaranteed stock, and the grower should be protected by a written agreement that would bind the nurseryman and hold him liable for losses through negligence.

A committee composed of A. A. Wright, M.P., and Alex. McNeill, was appointed to interview the postmaster-general regarding the establishment of a parcel post for fruit and other produce, somewhat similar to that in G. Britain. There, it is satisfactory to the growers of fruit and vegetables. It makes the handling of small consignments convenient. It has the effect of causing railway companies to compete with the government in collecting, carrying and delivering parcels. It enables the producer to deal direct with the consumer.

THE COOPERATIVE MOVEMENT

Considerable discussion took place regarding the organization throughout the province of additional cooperative fruit growers' assns. The value and progress of the cooperative movement to date was referred to briefly by A. E. Sherrington, of Walkerton, and others. A committee was appointed to wait upon the Minister of Agriculture at Ottawa in the interests of the cooperative assns.: Harold Jones, Maitland; Elmer Lick, Oshawa; A. A. Wright, M.P., South Renfrew; E. D. Smith, M.P., South Wentworth; J. E. Armstrong, M.P., Lambton; and Peter McKenzie. The general cooperative committee for the year consists of 5 members: A. E. Sherrington, Walkerton; D. Johnson, Forest; Robt. Thompson, St. Catharines; W. H. Dempsey, Trenton; and J. E. Johnson, Simcoe.

The Ont. Hort'l Exhibition was the subject for some discussion, as one of the directors felt that the paying of $2,000 for the Black Dike Band had not proven to be a good business proposition. With this one exception, the consensus of opinion was in favor of the band. It increased the educational advantages of the show. Through its presence, the exhibition has taken a forward step. Although $2,000 was paid for the engagement, the band actually did not cost the show anything. It practically paid for itself. The deficit last year was not so large as the one the year before.

OFFICERS AND COMMITTEES

Officers for the ensuing year were elected as follows: Pres., Harold Jones, Maitland; v.-pres, Elmer Lick, Oshawa; sec.-treas., P. W. Hodgetts. Toronto; executive, the foregoing, W. H. Bunting, St. Catharines, and A. E. Sherrington, Walkerton. Transportation committee: W. H. Bunting and Robt. Thompson, St. Catharines; W. L. Smith, Toronto; D. Johnson, Forest; H. W. Dawson, Toronto; R. J. Graham, Belleville. Show committee: W. H. Bunting, Elmer Lick, A. W. Peart, P. W. Hodgetts. Directors on Board of Control of Fruit Expt. Stas.: A. M. Smith and Geo. A. Robertson, St. Catharines; W. T. Macoun, Ottawa. Director on Board of the Hort'l Pub. Co., Elmer Lick. Representatives on Fair Boards: London—A. O. Telfer, Ivan, and J. S. Scarfe, Woodstock; Ottawa—R. B. Whyte and A. A. Wright, M.P.; Toronto—W. H. Bunting and P. W. Hodgetts. No changes were made in the other committees.

Fruit Growers Divided

Emphatic protests against any semblance of a reciprocal tariff in fruits between Canada and the U. S. were made at a meeting of the fruit growers of the Grimsby-Winona district, on Jan. 18. The following resolution was presented and carried: "That this meeting of the fruit growers of the Niagara district desire to express our disapproval of the action of the directors of the Ont. Fruit Grs. Assn. in appointing a committee to confer with a committee of Michigan State fruit growers, with a view to arrange a reciprocal tariff on fruits and fruit products. The present tariff on fruits is too low when we consider the increasing expense in fighting the many insect enemies and diseases, the very high price of labor, the scarcity and high prices of fruit packages and the enormous cost of and loss in transportation. We can produce all the domestic fruits required for home consumption, and the home market should be protected for Canadian growers."

A largely attended meeting of the Niagara Peninsula Fruit Grs. Assn., held in St. Catharines on Jan. 19, showed that the fruit growers of the Niagara district are not all so opposed to the action of the Ont. Fruit Grs. Assn. in appointing a committee to confer with the growers of Mich., as are those of the Grimsby district. It was unanimously resolved: "That this association wishes to place itself on record as being in harmony with the Ont. Assn. in regard to meeting the Michigan growers. We, however, feel that this association of fruit growers can hold out no hope of any reciprocity in the matter of fruits between the two countries."

Officers were elected as follows: Pres., W. H. Bunting; v.-pres., F. A. Goring and W. C. McCalla; sec.-treas., C. E. Fisher; executive committee: R. Thompson, J. H. Brodrick, W. O. Burgess, Geo. A. Robertson, C. B. Hare, Alex. Muir, C. Lowery, F. Blaikie, Wm. Armstrong, C. Pettit, D. Pew, Wm. Henderson, S. H. Rittenhouse, George F. Stewart, Major Hiscott, Isaac Wismer, Carl Munro, F. Berriman, Wm. Gallagher, C. M. Honsberger, S. M. Culp, R. W. J. Andrews, R. F. Robinson, Geo. Brown, J. Carpenter and W. A. Emery.

Ontario Fruit Stations

The following letter was received recently from P. W. Hodgetts, sec., O.F.G.A., a member of the Board of Control of the Fruit Expt. Sta. of Ontario: "The names of the experimenters in New Ontario are S. B. Bisbee, New Liskeard, and R. Chapman, Judge. Neither of these men have been officially appointed experimenters; but some material was sent them last year, and I believe some more will be sent them this year, for them to test. The soil was so much in pockets in that country and seemed to be so much influenced by lakes and rivers, that the Board decided it was hardly wise as yet to settle anything definitely.

"The Minister of Agriculture has started a pioneer farm in Temiscamingue similar to the one started by Mr. Dryden at Dryden, Ont. It is likely that we will set out some hardy fruits there as soon as the place is properly cleared and the man appointed to look after it.

"The Board met on Jan. 7 and confirmed the appointment of J. L. Hilborn as fruit experimenter at Leamington, and of E. E. Adams as vegetable experimenter at the same place, subject to the approval of the Lieut.-Governor in Council. These gentlemen have already been conducting some work along this line, and have sent in reports for our report of 1906. It was decided to have Mr. Hilborn carry on some tests next year as to the protection of roots from winter-killing and the use of hardy plum roots for peach stock; Mr. Adams will be asked for certain suggestions along his special line of work. A special committee was appointed to outline work for, not only the new stations, but the older stations that had been testing varieties for the last ten years. The policy of the Board will be not to give very much new work to those stations in the Niagara district, namely those of Messrs. Peart, Woolverton and Pettit, nor to the stations of Sherrington, Jones and Mitchell, until the Niagara District Station of Jordan Harbor is in running order and some idea of the scope of the work to be undertaken there is definitely settled. The strawberry station, as conducted by Mr. Stevenson, will be closed."

TO EXTEND AREA OF PEACH CULTURE

The secretary of Ont. Fruit Expt. Sta., Linus Woolverton, kindly furnished the following: "One of the topics discussed at the meeting of the Board of Control Ont. Fruit Exp. Sta., on Jan. 7, was the best method of withstanding the loss of peach trees from winter-killing of the roots, such as occurred in Essex in 1899 when tens of thousands of trees were destroyed. It was decided to have a quantity of peach trees budded upon hardy plum roots, on purpose for this experiment; and then to have these distributed for a thorough test. No doubt these would be much hardier than on peach roots, and also would succeed on clay soils where the peach root proves too tender. The secretary was ordered to make arrangements for the special propagation and distribution of such trees."

The Cooperative Associat'ns

The directors of the Ont. Cooperative Fruit Grs. Assn. met in Toronto on Jan. 8, and discussed matters that will tend to promote the interests of the cooperative movement in the province. The directors were unanimous in expressing the opinion that the organization of a provincial association last summer had been a good move. It was pointed out that the fruit trade in Europe can be increased to the advantage of the associations by getting into close touch with the retail merchants. The associations should have a man there to canvass the retail trade and all merchants who buy direct. It is probable that such a representative will be appointed before long. Mr. McNeill, Chief, Fruit Division, was present, and intimated that it would be well to induce the English buyers to place representatives in this country. Some members of the board concurred with this view.

Among the resolutions passed at the meeting was one dealing with the control of the San Jose scale, as follows: "That the Government be asked to aid in the suppression of the San Jose scale, in Kent county and in the other districts to which the scale is spreading, by holding meetings for the purpose of educating the growers on the nature of the pest and on the best methods of spraying for its control, by having the question of parasites taken up by the authorities at the O.A.C., and, further, to be more vigorous in enforcing the law respecting the fumigation of nursery stock; and that any work that is to be done this year should be done early and thoroughly, and that a copy of this resolution be forwarded to the Min. of Agri. for Ont."

A resolution was carried respecting the substitution of varieties by nurserymen, as follows: "That it is the opinion of this association that legislation should be enacted to require nursery firms to produce nursery stock that will be true to name, that the nurseries be held responsible for such stock, that a law be made to protect the grower by binding the nurseryman to give a written guarantee that will hold him liable for losses to growers, on account of negligence on the part of the nursery, and that a copy of this resolution be forwarded to the directors of the Ont. Fruit Grs. Assn. as a means of strengthening the action taken by them on this question at recent meetings."

It is just a year since I became a subscriber to THE HORTICULTURIST for the first time. In the future, I should not like to do without the magazine.—L. C. Clarke, Morden Man.

What Ontario Horticultural Societies are Doing

THAT the Toronto Hort'l Society is alive and intends to devote more energy and attention to matters pertaining to the interests of the society, was manifest at the annual meeting, held in St. George's Hall, Toronto, Jan. 9. A large attendance was present, and everyone was filled with ambition and enthusiasm to bring the name of the society more prominently before the public this year than ever before.

President H. R. Frankland was re-elected; George Muston was elected 1st v.-pres., and W. G. Rook, 2nd v.-pres. As the president expressed a strong desire that half of the board of directors be ladies, the following board was elected by ballot: Col. Delamere, John Chambers, Wm. Jay, R. J. Score and G. H. Mills, and Mrs. Abbott, Miss Blacklock, Miss Morse and Mrs. Kingdon.

PROGRESS IN PETERBORO

At the annual meeting of the Peterboro Hort'l Society, held in January, 1905, it was decided to discontinue the annual "Horticultural Show," which involved much labor and expense. The annual prizes called for an expenditure of about $150, besides other considerable expenses for hall, music, attendance, cartage, etc. The entrance fees were trifling, and year after year the bulk of the prizes were taken by the same people. To take the place of the show, and to encourage and cultivate a taste for horticulture, we are now giving shrubs and bulbs, also a year's subscription to some good horticultural paper and prizes for the best kept lawns and gardens.

In 1905 we distributed to our members for the spring 600 tuberous begonias and 1,700 gladioli; and in the fall 5,000 tulips and 700 hyacinths, which, with the subscription to the paper, cost us about $135. We also gave $31 for lawn prizes. We found that the members were much better satisfied, and that our membership increased from about 90 to 115.

This year we have given to our members 500 peonies, 1,000 hyacinths and 1,300 daffodils, also the subscription to the paper, at a cost of about $210, and lawn prizes amounting to $31. Our membership has increased to 175. Quite a number of the names were sent in without solicitation. Our lawn prizes are divided into three classes: First, for grounds kept wholly by paid labor; second, for grounds kept partly by paid labor and partly by owner; and third, for grounds where owners do all the work themselves.

The prizes are the same in all classes, viz., first prize, $5; second prize, $3; third prize, $2. We might say that in the last case we do not give the prizes to the finest places, but to the ones that we consider have accomplished the best results with the means at their disposal; for example, this year the first prize was given for a back yard, which the year before was nothing but a bed of tan bark. It had been transformed into a very pretty flower garden. The second prize was given to a lady who had changed a gravel bank outside her door into a beauty spot admired by all who passed her home. We feel that next year will see quite a number of little plots of ground improved and made attractive.

Our society also takes charge of the two small parks in the centre of the city. We receive a grant from the county council and one from the city. We have a park committee whose duty it is to meet in the spring and decide on what class of flowers shall be planted in the different beds, and also as to the improvements to be made during the year. The committee calls for tenders from the local florists, the contract being let to the lowest tenderer. The florist securing the contract has to supply the plants and set them out, and they remain his property, he being allowed to take them up on or about the first of October. In this way the florist secures many valuable plants for cutting purposes and the society secures much better price.—W. L. Beal, Sec.

THE SOCIETY IN BOWMANVILLE

The annual meeting was held on Jan. 9, with President Jarvis in the chair. In the absence of Secretary Barber, Jas. Gale was appointed to act pro tem. The auditor's report showed the total receipts for the year $232.50, and the expenditure $220.24, leaving a balance on hand of $12.32. The report was received and adopted.

As according to the new act relating to horticultural societies, one-third of the money must be spent in disseminating literature, it was decided to procure a copy of THE CANADIAN HORTICULTURIST for each member for 1907.

Mr. Jas. Gale

An active member of the Bowmanville Horticultural Society is Mr. Jas. Gale, editor of the Bowmanville *News*. He was secretary for five years and now is one of the directors. Although a man of business with many duties to perform, he takes great interest in horticulture and in the Bowmanville society.

The election of officers resulted as follows: pres., R. Jarvis; 1st v.-pres., L. A. W. Tole; 2nd v.-pres., Jas. McLean; sec., A. Barber; treas., J. H. Jury; directors, F. Couch, Jas. Gale, J. Hellyar, J. Jeffery, S. Jackman, M. A. James, J. S. Moorcraft, A. Tait, A. S. Tilley; auditors, J. S. Moorcraft and J. A. McClellan.

British Columbia Letter

C. P. Metcalf, Hammond

The weather conditions this month are somewhat different from other years. The mercury has been down close to zero for 2 or 3 weeks; but, with considerable snow on the ground as at present, trees, plants, etc., will come through with very little injury. With regard to the planting of fruit trees, it would be difficult to recommend many varieties for planting in all parts of the province. The following, however, are being grown successfully in almost all the fruit growing sections: Apples—Yellow Transparent, Duchess, Gravenstein, Wealthy, King, Jonathan, Blenheim Orange, Grime's Golden, and Spy. King David and Delicious have been introduced from the American side and are highly recommended, but as yet nothing definite can be said about them. Yellow Newton Pippin and Spitzenburg are likely to be largely planted in some sections of the upper part of the province. Plums—English Damson, Bradshaw, Green Gage, Grand Duke, Englebert and Yellow Egg. Of the prunes, the Italian, or Fellenberg, is the most popular, because of its productiveness and shipping qualities. Pears—Bartlett, Beurre Clairgeau, Beurre d'Anjou, Howell, Winter Nellis and Seckle. Sweet cherries—Royal Anne, Windsor, Bing, Lambert, Black Tartarian. Sour cherries—English Morello, Early Richmond, May Duke, Montmorency, Olivet. Peaches are being grown extensively in the upper part of the province, but the best varieties are not very well known yet.

These are a few of the varieties of fruits that can be grown successfully, but legion is the number that are being grown all over the province. This is one of the serious drawbacks to many of the older orchards. The newer orchards are being planted to only 5 or 6 commercial varieties that are known to succeed in their locality.

Of the raspberries, Cuthbert, Marlboro and Northumberland Filbasket yield very well; but Cuthbert gives the best satisfaction through the province. The yellow varieties are not planted except as novelties. The varieties of blackberries cultivated vary greatly in the different districts, and almost all succeed well. Snider, Kittatinny, Erie, Eldorado, Taylor, Lawton, and the Evergreen, or trailer, are among the best. In Strawberries, Excelsior for early crop, Magoon, Paxton and Splendid for local market and Wilson and Warfield for shipping have given the best satisfaction; but there are many new varieties being tried, some of which are very promising.

Apples for Quebec

At the winter meeting of the Que. Pomological Society, held at Knowlton, on Dec. 19 and 20, 1906, the following resolution was passed: "That, in view of the annoyance, disappointment, discouragement and great loss which the fruit growers of the province of Que. have experienced through the planting of trees untrue to name and unsuitable to the province, on account of the tenderness of the tree, the Quebec Pomological Society, which has for its object the advancement of the best interests of the fruit growers of this province, shall publish and have distributed to as many persons as possible a circular containing lists of varieties of fruits approved and recommended by this society; and, furthermore, that the provincial government be asked to bear the expense of such a publication and assist in the distribution of the same."

Apples recommended by the Que. Pomological Society for planting in the province of Que. are: For the district bounded on the east by Three Rivers and Sorel, and from these points west and south throughout the province—Summer, Yellow Transparent, Lowland Raspberry, Duchess; autumn, Langford Beauty, St. Lawrence, Wealthy, Alexander; winter, Fameuse, McIntosh, Wolf River; late winter, Canada Red, Scott Winter, Golden Russet, Baxter and Milwaukee.

For the district from Three Rivers and Sorel to L'Islet east and south—Summer, Yellow Transparent, Lowland Raspberry, Duchess; autumn, Peach of Montreal, St. Lawrence, Wealthy, Alexander; early winter, Fameuse, McIntosh, Wolf River; late winter, Scott's Winter, Canada Baldwin, Milwaukee, Baxter.

For the extreme north and for counties of Rimouski and Charlevoix, north and east—Summer, Yellow Transparent, Duchess, Charlamoff; autumn and winter, Wealthy, Patten, Greening, Hibernal and Longfield; crabapples.—Whitney, Marlton, Transcendent, Hyslop.

The large stock of peach trees recently advertised in THE CANADIAN HORTICULTURIST by Stone & Wellington, Toronto, is being disposed of rapidly. Growers should order now.

Nurserymen and Fruit Growers on Fumigation

THE question of fumigating nursery stock is one of increasing importance. San Jose scale is spreading in the province of Ontario. It will extend the area of its depredations if adequate steps are not taken to control it. The value of fumigation as a means of doing this is a point upon which there is a diversity of opinion. To learn the conclusions of practical men regarding the matter, THE CANADIAN HORTICULTURIST submitted the following list of questions to leading nurserymen and fruit growers: "Do you consider fumigation of nursery stock to be a necessity? Does it kill all the insects and scale that it is claimed to do? Can you cite instances where it has injured the trees? What do you think of dipping the trees in a lime-sulphur wash as a substitute for fumigation?" Here are some of the replies:

OPINIONS OF NURSERYMEN

"Do I consider fumigation of nursery stock a necessity?" writes E. D. Smith, M.P., Winona, Ont. "If it were not for the excessive cost of an absolutely thorough inspection, I should say the inspection, accompanied by the destruction of all trees on which scales were found, would be more satisfactory to the nurserymen. At any rate, it would to me, as our losses under that system would be nothing. The objection to depending upon that system, however, entirely, is that no inspection can be thorough, no matter what the cost. Inspectors have told me that no matter how often they may go over a block of trees, whether it is fruit trees or nursery stock, if scale is there at all they are never sure they have found the last one, and I can well believe this, as it is such an infinitesimally small thing it may be so easily hidden. The objection to fumigation lies chiefly in the delay that it causes in the handling of the trees, making it necessary that they shall be out of the ground greater lengths of time than they would be without it. An exhaustive experiment, conducted on my grounds by W. N. Hutt, formerly of the Dept. of Agric., Toronto, convinced me that there is no damage done by fumigation. Mr. Hutt was furnished by me with a large quantity of nursery stock of almost every variety of fruit trees and bushes. Some of these were not fumigated at all. Some were fumigated with the ordinary strength, some with double strength, and some with treble strength. Others were fumigated wet, as it was supposed that the damage was caused by fumigating the stock wet. These trees were planted in a row on my grounds, and the growth watched during the season. In the fall a certain synopsis was made of the results, and it showed that there were no greater losses in one lot than in another. The trees that were fumigated even with treble strength, and those that were fumigated wet showed no greater percentage of loss than those that were not fumigated at all. Consequently, although I was a firm believer up to that time that fumigation was disastrous, I could not but conclude that fumigation did no damage to the trees of itself. Nevertheless, we have had very much greater losses since fumigation started than before, and I can only account for it on the assumption that the trees were damaged by the greater length of time they are obliged to be out of the ground."

"As to dipping the trees in lime and sulphur wash," continued Mr. Smith, "it would be out of the question. The quantities that are handled and the disagreeable nature of the operation would make it impossible. I have often thought that something of that nature might be done, dipping in whale-oil soap, for instance. I am not sure whether this would damage the roots or not. If it would not damage the roots, a whole load of trees might in some mechanical manner be lowered into a large vat, and, after becoming saturated, lifted and allowed to drain. Experiments would first have to be made as to whether these solutions would damage the roots or not. If so, then this method would be impracticable, and every tree would have to be taken by the roots and dipped individually, which would be too expensive and too nasty an operation."

C. W. F. Carpenter, Winona, Ont.: "The fumigation of nursery stock is a decided benefit to the trees in the eradication of the San Jose Scale or other scales. I cannot say definitely that it will kill every single scale, as I have not personally made any tests along this line. I do not think it necessary where there is not any scale in a radius of several miles of nursery stock, to have same fumigated, especially when inspectors have gone over the stock and pronounced it free from scale. There is no doubt, however, that fumigation is a thorough insecticide. The only stock that fumigation will injure are peaches and cherries, which in the last few years, since fumigation has been in force, have been injured from said procedure. It is almost impossible, especially in the case of sweet cherries, to get them fumigated in the spring in a perfectly dormant condition, as the buds of this stock swell very early. This is where the danger lies in fumigation. If trees are in a proper condition and perfectly dormant, there is not the slightest injury done to them, but a decided benefit, as it frees the tree from insects. Dipping trees in sulphur solution is almost out of the question from a nurseryman's standpoint. It would be possible for the planter to do this; but where we handle tens of thousands of trees yearly it would be impossible."

Joseph Tweedle, Fruitland, Ont.: "Fumigation does pretty thorough work, but the fumigated trees make a very feeble start into growth. I planted fumigated peach trees last spring, and they did not start to bud for 6 weeks to 3 months, although they were in an excellent condition when planted. I pointed this out to the nurseryman who paid me a visit in midsummer and examined my trees. He said he was very dissatisfied, as it was the general complaint; and he thought with myself that dipping with lime and sulphur is much better for the health of the trees, as this treatment has been so effectual in the orchard. It would be a wise move if the Government would legislate to make the change, or at least give us an option to use either method we might choose. I much prefer to use the lime and sulphur as a substitute for fumigation, it being just as effectual and much safer for the trees."

A. G. Hull & Son, St. Catharines, Ont.: "Fumigation of nursery stock is a wise precaution. It is effective when thoroughly done. No injury is done to apple, pear or plum trees, but cherry, peach and ornamentals are more or less injured when so treated. There is a difference of opinion, however, regarding the question. Some planters prefer stock that has not been fumigated. Dipping the trees in the lime-sulphur wash would be the surest and safest method. It would cover every doubt."

Morris & Wellington, Fonthill, Ont.: "Dipping trees in lime and sulphur wash would not be practicable for large nurserymen, as the short season for handling large quantities of stock would not give them time to perform the work thoroughly. Fumigating would, perhaps, injure peaches and other stock with tender roots, if applied full strength. To avoid this, we fumigate such stock in our frost-proof cellars during the winter, while the roots of the trees are heeled in the soil In this way we have not noticed any injurious effects from fumigating."

Brown Brothers Company, Ltd., Browns' Nurseries, Ont.: "There can be no doubt as to the necessity for fumigation where scale or other pests actually exist; but there is a great amount of work done in this line where there was not even a suspicion of a scale. There is no way of determining absolutely beforehand whether or not the work is necessary. Fumigation of stock coming from the States, which has already been fumigated and is so certified by certificate on the package or car, should be prevented. Could not provision be made for the acceptance of authentic foreign certificates of fumigation?

"Certain classes of stock are much more susceptible to injury by fumigation than others; but it is difficult to see how the dose can be adjusted to suit certain stocks. Dipping trees in lime-sulphur wash seems to be an entirely impractible process, especially where many thousands of trees are handled. It would be extremely disagreeable and dirty, on account of the nature of the mixture, and it would be difficult to procure men for such work, even if it were practicable. The present process, aside from possible damage to stock, is the most thorough, effective and expeditious."

WHAT FRUIT GROWERS SAY

A. O. Telfer, Ilderton, Ont.: "Fumigation of nursery stock should be certain death to all insects. The lime-sulphur wash might be safer but not as sure a remedy."

W. H. MacNeil, Oakville, Ont.: "I am of the opinion that dipping trees in the lime-sulphur wash to kill insects would also kill the buds."

Milton Backus, Chatham, Ont.: "For several years I have imported young stock from New Jersey, and its vitality has been badly injured by fumigation. Coming from there it gets fumigated twice. By the best American authorities the practice is considered injurious to young stock in particular. Dipping the trees in the lime-sulphur is preferable."

C. M. Honsberger, Jordan Station, Ont.: "Fumigation does not do all that is claimed for it, except at the risk of killing the trees or plants so treated. My opinion is that dipping in lime and sulphur before the trees are prepared for planting is preferable to fumigation."

F. S. Wallbridge, Belleville, Ont.: "The fumigation of nursery stock is more a question for chemical experts than for fruit growers. Fumigation can be, and sometimes is, overdone, the stock being subjected to a longer fumigation, with probably a greater quantity of fumigating material than should be the case. There would be no bad results from fumigation if it were done carefully and properly, but the danger is that it may not be attended to in that way. Fortunately we are not troubled with the San Jose Scale in this locality, and we do not know what effect fumigation has upon the scale. Dipping the trees in a lime and sulphur mixture is, I believe, far preferable to fumigation. The danger from the lime and sulphur is practically nil, and it certainly has a cleansing effect upon the trees. If the experts at the Experimental Farm consider it just as effective for the scale, it should be adopted without hesitation in lieu of the fumigation."

Geo. E. Fisher, Burlington, Ont.: "Fumigation is more reliable for destroying insect life than any other treatment. While it is not an absolute necessity, except with the San Jose Scale, it is always desirable if carefully conducted. No animal life can resist an exposure of 40 minutes in a gas-proof compartment containing gas from one-quarter of a gramme of cyanide of potash to each cubic foot enclosed, at which strength it is used in fumigating nursery stock. It is questionable, however, if the gas has any effect upon eggs. The proportions and quality of chemicals recommended by the Dept. of Agric. will give satisfactory

results if properly used. I have handled and planted trees which appeared to have been injured by fumigation. I have observed plum trees of bearing size in the orchard which were infested and fumigated during the fall, leafing out a week or ten days later than similar trees standing in the same orchard which were not so treated; but there was no permanent injury. All trees resist treatment better in the spring than in the fall. I think, however, that in nursery stock fumigation much of the injury attributed to the gas belongs to unnecessary delay in getting the roots under cover. No pains are taken to hasten the work, and the tender rootlets are left exposed to the sun and wind until there is little chance for recovery. As the San Jose Scale is frequently found on the base of the trunk and larger roots, it would not be practicable to destroy it by immersion without putting the whole tree, roots and top, into the lime and sulphur mixture. This would be more trying to the fibrous roots than exposure to gas."

Cooperative Experiments in Vegetables

THE following is a portion of the report of the committee appointed by the Ont. Veg. Grs. Assn., at the request of the Ont. Agric'l and Exp'l Union, to attend the meeting of the union held last Dec. in Guelph. This report will be presented to the bd. of directors of the O.V.G.A. It is published to give members of the assn. an opportunity to consider the suggestions made. The report, in part, is as follows:

"At a meeting of the Ont. Veg. Grs. Assn., held in Toronto previous to the convention in Nov., a communication was read from Geo. A. Robertson, pres. of the Ont. Agri'l and Exp'l Union, asking that some of our members attend the annual meeting at Guelph with a view to possible cooperation. At the convention, the directors appointed a committee for the purpose composed of Pres. F. F. Reeves, Humber Bay, W. A. McCalla, St. Catharines, T. Delworth, Weston, and J. Lewis, Hamilton. Messrs. Reeves and Delworth attended the experimental union meeting on Dec. 10 and 11; the other members of the committee were unable to be present. During the sessions of the union, there appeared t to be a misapprehension regarding the position of the delegates from the O.V.G.A. Some members, apparently, wished to give the impression that the O.V.G.A. had applied to the union to assist the vegetable growers in experimental work. This was not so.

The union appointed a committee to meet with Messrs. Reeves and Delworth with a view to considering what could be done. The committee comprised Prof. Hutt, and Messrs Holterman and McMeans. This committee asked the vegetable men to suggest lines of work that could be carried on. The delegates told them that their visit was only in response to the inivtation of the president of the union and that they had no instructions from the directors of the O.V.G.A. regarding the lines of work that the association would like to have undertaken. The delegates suggested, however, that it would be profitable to take up variety tests with the following vegetables: Carrots, beets and beans. This did not meet with the approval of Prof. Hutt, who claimed that they had no ground work on which to base such experiments. He claimed that it would take 3 or 4 years' experimental work at Guelph to gain the necessary information. The vegetable men were of the opinion that if variety tests are of any value, practical growers could easily give the information regarding standard commercial varieties that could be tested against the novelties that are disseminated by reliable dealers.

"The question was raised by Mr. Holterman as to whether or not the vegetable men would be dealt with as an association or as individuals in the event of the union taking up cooperative experiments. Prof. Hutt replied that the only way he could treat with the vegetable growers would be as individuals. He said that when the experiments were decided upon, (which might or might not be those suggested by the growers), they could, if they wished, take part as experimenters, with the understanding that they should report results to the experimental union. It appeared to the delegates that the experiments would not be conducted with a view to their usefulness to the growers, and that those in charge of their directions do not appear to have any practtical knowledge of the needs of the commercial vegetable grower. They felt, also, that were experiments conducted by the growers on lines suitable to the union, it would simply place the O.V.G.A. in the position of a feeder for the union. Experiments sent out, as intimated by the union committee, would be of no material benefit to practical growers. The delegates, therefore, told the committee that they thought that the commercial grower would take very little interest in the experiments."

A PLAN OF WORK

The report, in conclusion, suggested that the O.V.G.A. outline and conduct a series of ex-

Carolina Poplar

¶ This tree can be recommended for growing in city or country; it thrives equally well on sandy or heavy soils, and it is a vigorous grower under conditions which would kill most trees. For shade, windbreaks, or ornamental uses it is unsurpassed. Send for our illustrated pamphlet, giving full information of this useful tree. We are now booking orders for sizes 6 to 8 feet.

E. D. SMITH

The Helderleigh Nurseries Winona, Ontario

WE HAVE A FEW VACANCIES ON OUR STAFF FOR AGENTS OF UNQUESTIONABLE ABILITY AND HONESTY

Mention The Canadian Horticulturist when writing

periments by itself. Its recommendations are as follows: "That, inasmuch as no way seems to be open to make the work of the experimental union of more value to vegetable growers, that this ass'n. take such steps as may be necessary to conduct a series of experiments in vegetable growing among its own members, and that the direction of such shall be under the management and supervision of the board of directors."

The following resolution is submitted in the report to serve as a basis upon which to outline the work: "That each local branch be requested to appoint from among its members one or more persons—the number to depend upon the membership—to conduct experiments for that district. Each experimenter to be supplied by the assn. with the necessary seed or fertilizers, or both as the case may be, and paid a sum, to be decided upon, for conducting the experiments and for sending a written report of same to the sec. of the assn." The report suggests also that about 15 experimenters would cover the field for the 10 local branches of the assn., to be distributed as follows: Ottawa, Kingston, Toronto, Hamilton, St. Catharines, Brantford, Chatham, Sarnia, Tecumseh, and Scotland. It is suggested, also, that, if funds will permit, some competent person should be appointed to visit these experimental plots at some time during the season to inspect them and to send in a written report of their condition."

An excellent little book entitled "Spraying for Profit," by Howard Evarts Weed, is offered for sale by the Horticultural Publishing Co., for the small sum of 15 cents. It should be in the hands of all fruit growers and gardeners. Practical information is given regarding fungous diseases and insects. The materials used in spraying, as well as spray pumps and outfits, are dealt with in a manner that will be welcomed by practical men. A large part of the book is devoted to a summary of the leading pests of fruit trees, vegetables and ornamental plants with directions for combatting them. Send for a copy of this interesting book.—Address Manager Book Dept., THE CANADIAN HORTICULTURIST, Toronto.

The successful grower is he who is continually looking forward. Are you contemplating purchasing new supplies this year? Don't forget to first get the large, liberal catalogs our advertisers are so glad to send you. The difference in the price of the articles advertised in this paper, and what you will buy from your local dealers, will save you, often, a tidy little sum. Be sure and mention THE HORTICULTURIST, as this insures the protection of our Protective Policy, as outlined on the editorial page.

SEND FOR OUR
CATALOGUE

It contains everything of the newest and best for the *Farmer*, the *Market Gardener* and the *Amateur*

High-Grade Seeds, Plants, Tools, Poultry Supplies, Floral Work

GRAHAM BROTHERS
53 & 55 Sparks Street
OTTAWA

The Latest Novelties in Sweet Peas

Mention The Canadian Horticulturist when writing

Dominion Line
ROYAL MAIL STEAMSHIPS

Portland to Liverpool

*DOMINION	Feb. 2nd
CORNISHMAN	" 9th
*CANADA	" 16th
NORSEMAN	" 23rd
*SOUTHWARK	Mar. 2nd

*These Steamers carry all classes of passengers

Portland to Bristol
(Avonmouth Dock)

ENGLISHMAN	Feb. 7th
TURCOMAN	" 21st
MANXMAN	Mar. 7th
ENGLISHMAN	" 21st

Favorite steamers for all kinds of perishable cargo having fan ventilation, cold storage, and cool air chamber.

G. W. TORRANCE
M. A. OVEREND
. . . . 28 Wellington St. E., TORONTO

DOMINION LINE—PORTLAND, Maine.

Mention The Canadian Horticulturist when writing.

EWING'S
RELIABLE SEEDS

And Everything for
GARDEN, GREENHOUSE, FARM AND LAWN

One cannot tell much about seeds' reliability by their appearance.
" The Harvest Test is the Only Test."

EWING'S SUPERIOR SEEDS
Are the result of many years of careful selection, and in the ground they can be relied upon to produce bigger and better crops. Thousands of planters all over Canada can vouch for this fact. ¶ Our 1907 Catalogue is more complete than ever and we want to mail you one. Send along your address.

WILLIAM EWING & CO
SEEDSMEN
142-146 McGill Street, Montreal

Mention The Canadian Horticulturist when writing

Opinions on the Tariff

The following letters on the new tariff were received by THE CANADIAN HORTICULTURIST too late for publication in the last issue. A. W. Peart, of Burlington, Ont., wrote as follows:

"In 1904, the value of fresh fruits such as are grown in Canada, imported from the U.S., was $446,474. For the same year the value of fresh fruits exported from Canada to the States was $171,368. In other words the balance of trade in fresh fruits was against Canada, $275,106. The new tariff in fruits is practically the same as the old. Pears, instead of an ad val. duty of 20%, are now ½ct. a lb. Plums are now 20c. a bu. instead of 25% ad val. I think that these changes will be to the advantage of the fruit grower here, as they do away with any temptation to undervalue.

"So far as competition in our early markets is concerned, we are in no better position. The later grown American strawberries, for example, will meet and displace our early berries in our own markets until the export margin of profit is wiped out by a failing market.

"In 1904 we also imported 816,000 bunches of bananas, valued at $809,084. This fruit must in a measure displace the consumption of our native fruits, especially our early pears. It is a question whether the time has not come to place a duty, say, of 10c. a bunch, on bananas."

E. D. Smith, M.P., Winona, Ont.: "The duties are practically the same as before, with 1 or 2 exceptions. Pears, instead of an ad valorem duty of 20%, are now covered by a specific duty of ½ ct. a lb. Plums, which were formerly brought in under an ad valorem duty of 25%, are now changed to 30 cts. a bu. Both of these changes are a serious blow to the fruit growing industry of Ont., and will no doubt stimulate trade with California fruits, particularly with plums. The fruit growers ask for a specific duty of 1c. a lb., which is low enough."

This letter was received recently from Robt. Thompson, St. Catharines: "In reply to your question as to what the fruit growers in this section thought of the action of the Michigan Hort'l Society, asking for a committee of growers to meet them and talk over reciprocity in fruit, I would say that while the general tariff policy of Canada is as it appears now to be, fixed for some years to come, the fruit growers would be very foolish to go into reciprocity with the U.S., unless they received advantages that do not now appear to be forthcoming, or unless other lines of industry would be included. At present baskets are protected to the extent of 25%, basket fasteners the same, and, in almost every line, their raw material is taxed. At the same time, they believe that the Ont. Fruit Growers' Assn. acted wisely in agreeing to meet their advances in a friendly spirit, and in appointing a committee to meet and discuss the situation. This was the only dignified and courteous course to pursue. The growers around St. Catharines were surprised to see the attitude and action taken by the Grimsby growers in discussing and taking action on a matter on which they only had an incorrect report taken from the newspapers. Had they waited and enquired from the proper official source, they would have found the motion to have been passed unanimously and perfectly justifiable too in the mind of every reasonable grower."

The following letter was recently received by W. H. Brand of Jordan Station, Ont., who advertises on another page, Wallace sprayers. "Target Brand" scale destroyer and Keewanee water systems: "I purchased a Wallace Power Sprayer last spring for the Lincoln Co. Industrial Home. It works perfectly on trees, grape vines, potatoes and so on. I consider it the best all-round sprayer on the market to-day,"—A. N. Zimmerman, Inspector, Industrial Home, Jordan, Ont.

38 Leading Varieties
of STRAWBERRY and CANE BERRY PLANTS
7 Varieties SEED POTATOES
Illustrated Catalogue Free
JOHN DOWNHAM, Strathroy

THE WILLIAMS STRAWBERRY

The Great Commercial Strawberry of the Niagara District

It is quite safe to say that more Williams Strawberries are grown in the Nisgara District than all other varieties combined. It is certainly the kind for best results over a wide range of territory and adapts itself to a variety of soils. Be sure and get plants of strong vitality and true to name. I am now booking orders for Spring shipment at $4.00 per 1,000, 50c. per 100. Can also supply limited quantities of other standard sorts at reasonable rates.

THE CARLETON FRUIT FARM
WM. H. BUNTING ST. CATHARINES, ONT.
Mention The Canadian Horticulturist when writing

EXPERIMENT

Get the habit of ordering
Trees, Ornamentals
Shrubs, Roses
Small Fruit Plants
etc.
Direct from the Central Nursery

We have been shipping our goods to satisfied customers for 26 years, and why? Because they get good thrifty well-grown stock that grows true to name and O.K. Cut out the middle men's profit. Mail your next order, or write for prices direct to us for profit and satisfaction.

P.S.—I might say that those 1,450 trees I got from you last spring did EXTRA well.—D. T. White

A. G. Hull & Son

ST. CATHARINES, ONTARIO
Mention The Canadian Horticulturist when writing

Admiral Poppy

Bruce's Regal Seeds and Plants

RENOWNED FOR THEIR RELIABILITY SINCE THE ESTABLISHMENT OF THIS BUSINESS IN 1850

ADMIRAL POPPY
(Papaver Paeoniflorum)

¶This new single paeony-flowered Poppy is of surprising beauty. It is characterized by large round smooth-edged flowers of glistening pure white, with a broad band of brilliant scarlet around the top, occupying a full quarter of the corolla. These two colors form an extremely telling contrast, similar to that seen in the variety Danebrog. Planted in groups my new Admiral Poppy, which comes nearly true from seed, produces a magnificent effect. Packet, 15c.

ASTER, QUEEN OF SPAIN

¶This new variety of Giant Comet Aster is a beautiful primrose, turning to blush color, and quite equal to the Victoria Aster, Miss Roosevelt, which caused such a sensation in the floral world by its unique and delicate color. The Queen of Spain is most valuable on account of its color and for cutting purposes. Packet, 20c.

NOW READY, OUR HANDSOME 96 PAGE CATALOGUE OF SEEDS, PLANTS, BULBS, POULTRY SUPPLIES, GARDEN IMPLEMENTS, ETC. SEND FOR IT. FREE.

John A. Bruce & Co., Hamilton, Ont.

SEED MERCHANTS ESTABLISHED 1850
Mention The Canadian Horticulturist when writing

POULTRY DEPT.

Conducted by
S. Short, Ottawa

While, perhaps, rather early to begin hatching operations, it is not too soon to think over and plan the methods to be used in breeding in the coming spring. The hatching season is the most important time of the year to all interested in poultry. The veteran fancier has his pens mated up, and is looking forward to hatching and rearing stock that will win the highest honors in the show-room and thereby prove the owner's skill and judgment as a breeder. The beginner also looks around with a view to starting into the poultry business, his main idea being to hatch a large number of chickens. In fact, in a month or two, all of us will want lots of chicks, and the problem is how to get them with the least trouble and expense. The solution of that problem is this: Get an incubator.

INCUBATION

Up to last year experts agreed that if over 100 chicks were to be hatched an incubator should be used; if under that number, hens would be the most satisfactory. I have now no hesitation in saying that if 50 chicks are to be hatched, the incubator is the better method for many reasons. Incubators are now made so perfectly that eggs that will hatch under a hen will hatch in the incubator. The machine can be kept in the basement or in an unused attic, or in any room free from draughts and excessive cold. Of course, the colder the room, the more oil will be used to keep the temperature up. With all machines, the fullest and most complete directions are sent; and it is not unusual for beginners to have larger hatches than others, simply from the fact that they follow the printed directions more carefully than those who, by having experience, feel that they fully understand the care of the machine.

There is one point that I have heard several experts agree upon: on the last day of hatching the temperature should be 104, or even 105 degrees, rather than 103, which is the temperature recommended by most manufacturers. The chief complaint against the incubator is that too great a percentage of chicks die in the shell the last day. By raising the temperature to 104 better hatches have resulted. The only smell from the machine is from the lamp, which can be almost entirely overcome by trimming frequently and using the best oil.

THE SITTING HEN

The most aggravating and sometimes one of the dirtiest of creatures is the sitting hen. When hens are used for hatching they need a pen all to themselves. They have to be coaxed to sit in any place but that to which they are accustomed. If they do not break an egg or foul their nests, it is the exception, not the rule; and there is no more disagreeable or disgusting work than to have to wash the eggs and prepare a clean nest. After the chicks are hatched, the mother frequently kills from one to three by stepping on them in the nest. If vermin destroyer has not been used freely during the time of sitting, the chicks are infested with lice from the mother and have to be carefully treated for that pest or they will not thrive. Some hens sit on their eggs for 10 days or so and then desert them. All this can be avoided by using an incubator.

Perhaps a word of advice as to where to buy the machine may not be out of place. Of course there are a great many incubators of different makes on the market, both Canadian and American, and all claiming special merits. There may be poultry keepers in your neighborhood who are using incubators, and it might be best to profit by their advice; but I know quite a number that have ordered machines from American firms, direct from the makers, and invariably they (the buyers) have had to wait an unnecessarily long time before getting their machine, especially if ordered during the hatching season. The machine is usually shipped by freight, so that time will be saved by buying in Canada and near home, where you can reach the makers by mail in a day and get just as good an article. You also have the satisfaction of patronizing home industry.

Just a word to intending purchasers. Breeders at this season are glad to dispose of their surplus stock at fair prices, which means that good birds can be bought now for about half the price of what they will cost next March.

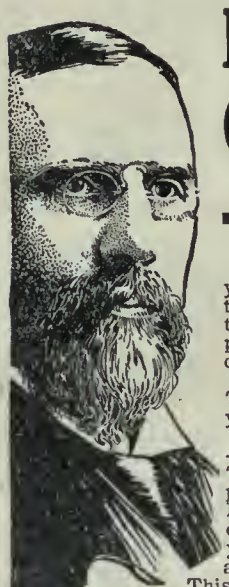
Books that Interest

It is interesting to note the manner in which the readers of THE CANADIAN HORTICULTURIST take advantage of our book department. Subscribers who want to establish a small, but practical, library for themselves are securing complete sets of books on their particular hobby.

Many of our readers, however, already possess comfortable libraries. These are adding complete departments to their library by securing books on horticultural subjects listed in our catalog.

If you are a member of a horticultural society it is to your advantage that you have books on your reading table that treat gardening and floral matters in a sound, practical manner. Such books as "Hedges, Windbreaks, Shelters and Live Fences," 50 cents; "Home Floriculture," $1.00; "Garden Making," $1.00; "Plant Culture," $1.00; "The Window Flower Garden," 50 cents, and similar works should be in the homes of every gardener and flower lover.

Fruit growers would find the following books indispensable if once they obtained them: "Fruit Harvesting, Storing, Marketing, etc.," $1.00; "Principles of Fruit Growing," $1.25; "Successful Fruit Culture," $1.00. These are but a few of the valuable books we have listed in our free catalog. Send for it. We will send any of the above books on receipt of price.



Let Me Sell You a Chatham Incubator —On Time

Do you know there is big money in raising poultry? Do you know there is more money in running a good incubator than in almost anything else you can do for the amount of time and trouble it takes? Do you know my incubator will pay you a bigger profit than any other thing you can have on your place?

Well, all these things are true, and I can prove it. Thousands of people all over Canada have proved it every year for the last five years.

I want to quote you a price on my Chatham Incubator, —sold ON TIME. I want to send you my Chatham book. This incubator book is *free*— I'll send it to you for just a postal card. It tells you a lot you ought to know about the Poultry business—it tells you how to make *money* out of chickens—it tells you how my Chatham Incubator will make you *more* money than you can make with hens—far more, and with less trouble.

This book tells you how my Incubators are made—why they are the best ever invented—and why I sell them ON TIME and on a 5-Year Guarantee.

My Company has been in business in Canada for over 50 years. We are one of the largest wood-working factories in the country. We also operate a large factory at Detroit, Mich. We have the Incubator and Brooder business down to a science.

Chatham Incubators and Brooders will make you money, for a Chatham Incubator will hatch a live, healthy chicken out of every fertile egg put into it, in 21 days.

Will you write for my book today? Do it now while you think of it. Just say on a postal "Please send me your Incubator Book"—that's all. Address me personally.

Manson Campbell
President
The Manson Campbell Co., Ltd.
Dept. F59, Chatham, Ont.

NOTE—I carry large stocks and ship promptly from branch houses at Calgary, Alta., Montreal, Que.; Brandon, Man.; Halifax, N. S., Victoria, B. C., and factory at Chatham.

Creighton Poultry Yards

High Grade Stock possessing utility and exhibition qualities

Barred Plymouth Rocks and White Wyandottes

Cockerels of either breed, $2.00 each

S. SHORT, PROP. OTTAWA, ONT.

Mention The Canadian Horticulturist when writing

John B. Smith & Sons
Limited
Cor. Strachan and Wellington Aves.
TORONTO

Manufacturers
. . of . .
LUMBER
LATH
SHINGLES
DOORS
SASH
BLINDS
SILOS, ETC.

Clear Cypress for Greenhouse Work
Mention The Canadian Horticulturist when writing

More Than a Salary

To increase our circulation we will allow a commission on all new subscriptions obtained to The Canadian Horticulturist which in the aggregate will average up to a very comfortable sum. The work is pleasant because you are your own employee, have your own hours, and in fact are in business for yourself. To such as become connected with us we have an exceptionally good offer to make. Write for particulars now.

CIRCULATION MANAGER
The Canadian Horticulturist
506-7-8 Manning Chambers
TORONTO

New Catalogs

The new catalog and circulars for 1907 being sent out by Wm. Rennie Co., Ltd., Toronto, give evidence that this enterprising firm still keeps up to its high standard of excellence. This company now has branches in Montreal, Winnipeg, and Vancouver, and so is in a position to fill, quickly and satisfactorily, orders from all over the Dominion. The catalog contains a complete list, with illustrations, of seeds, plants, bulbs, shrubs, etc., for the farmer, gardener and florist, besides tools and poultry supplies. The safe arrival of all packages ordered is guaranteed. A list of gardeners seeking positions is kept, enabling this firm to fill many vacant situations. This catalog should be secured.

The catalog recently published by John A. Bruce & Co., Toronto, should be in the hands of every agriculturist in Canada. It contains nearly everything of value to those engaged in agricultural and horticultural pursuits. New varieties and novelties are treated of conservatively. Connection is held with the best growers and the greatest ease is exercised in the selection of stock. This company has been in existence over 50 years, and it has acquired a reputation for honesty and reliability that deserves well of the public.

The well-known stock handled by the Steele, Briggs Seed Co., Toronto, is fully described and illustrated in their new catalog. Seeds, plants, bulbs, everything grown from the soil, are enumerated for the benefit of the grower. At the recent Ont. Hort'l Exhibition in 52 classes of vegetables, 143 prizes went to the products of Steele, Briggs' seeds. This is a noteworthy victory in an open competition. The public are cordially invited to visit their establishment and make a personal inspection of the care taken to maintain the highest standard of quality. A special western edition of their catalog has been published giving much information regarding garden crops in the prairie west.

FOR SALE AND WANT ADVERTISEMENTS

Advertisements under this heading inserted at rate of one cent a word for each insertion, each figure, sign or single letter to count as one word, minimum cost, 25 cents, strictly cash in advance.

LANDSCAPE GARDENING—Plans drawn to scale for laying out and planting parks, cemeteries, public or private grounds. Work supervised. C. Ernest Woolverton, landscape architect, Grimsby.

BE INDEPENDENT—We have a proposition that will appeal to all men interested in horticulture and who wish to be their own employees. Write immediately.—THE CANADIAN HORTICULTURIST, 506-7-8 Manning Chambers, Toronto.

NO MORE BLIND HORSES For Specific Ophthalmia, Moon Blindness and other Sore Eyes, BARRY CO., Iowa City, Iowa, have a cure.

IF YOU HAVE APPLES
OR POULTRY TO CONSIGN

we can handle them for you to advantage. If apples are in car lots, write us and we can sell them for you f.o.b. your station

THE DAWSON COMMISSION CO. Limited
Cor. West Market and Colborne St.
TORONTO ——— ONTARIO

Wouldn't You Like to Grow Some of the Old English Flowers in your Canadian Garden

IF SO

SUTTON & SONS

READING - ENGLAND

can supply you with varieties that are easily raised from seed, viz.—

SUTTON'S

Asters . . . . . Collection of 11 varieties	$2.50
Stocks, Ten-week . . Collection of 5 varieties	1.00
Primulas . . . . . Collection of 6 varieties	2.50
Pansies . . . . . Collection of 6 varieties	.75
Nasturtium, tall or dwarf Collection of 6 varieties	.50
Balsams . . . . . Collection of 6 varieties	1.00
Zinnias . . . . . Collection of 6 varieties	.75
Poppies, annual . . . Collection of 12 varieties	1.50
Sunflowers . . . . Collection of 6 varieties	.50
Marigolds . . . . . Collection of 6 varieties	.75
Godetias . . . . . Collection of 6 varieties	.75
Clarkias . . . . . Collection of 8 varieties	.50
Chrysanthemums, annual Collection of 9 varieties	.75

FLOWER SEEDS VALUE $2.50 MAILED FREE TO CANADA

Sutton & Sons
Reading, England

Menti on The Horticulturist when writing

Windsor Salt

The Salt-Royal of all Saltdom.

Each tiny crystal perfect—all its natural strength retained.

For cooking—for the table—for butter and cheese. Pure — dry — delicious—evenly dissolving. At all grocers'—bags or barrels.

117

Gladiolus Bulbs

Groff's World's Fair Collection
Groff's Pan-Am. Ex. Collection
Groff's New Named Varieties
Also America, Princeps and others
CANNAS, a large stock of the best varieties
DAHLIAS, many kinds. Write for Catalogue.

John A. Campbell, Simcoe, Ont.

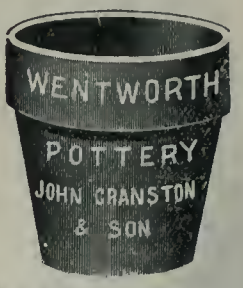
One of the neatest and best prepared catalogs that reaches our office each year is that of Stone & Wellington, Fonthill Nurseries. The one for 1907 is now being published and will be replete with lists and descriptions of varieties of fruit trees, shrubs and ornamental plants. Of particular interest will be the extensive descriptions of varieties and the directions for planting and cultivation. The Fonthill Nurseries are well known and reliable. Readers of THE CANADIAN HORTICULTURIST should have copies of their catalog.

The catalog that is issued by the Helderleigh Nurseries is always well gotten up. It contains descriptive lists of all the varieties of fruits that are worth growing in this country. As a large commercial fruit plantation is operated in connection with the nurseries, an excellent opportunity is afforded for testing the worth of new varieties before they are offered for general distribution. In the ornamental department of the catalog are listed the leading species and varieties of deciduous trees, evergreens, deciduous, climbing and evergreen shrubs, roses and hedge plants.

The Central Nurseries of A. G. Hull & Son, St. Catharines, Ont., have issued their annual catalog, presenting and describing their stock of trees, shrubs, roses, vines, etc. Situated where they are, these nurseries have all natural advantages in the growing of choice stock. Special attention is given to the supplying of hardy trees and plants that grow and do well in the west. Those interested should at once secure a catalog.

The catalog of the Buchanan Nursery Co., St. Charles, Man., has arrived at our office. It contains a comprehensive list of fruit, forest and ornamental trees, small fruits, shrubs, roses, perennial flowers and so forth. This company has proven that nursery stock can be grown

Wentworth Pottery



Standard Flower Pots, Fern Pans, Hanging Baskets, Cut Flower Jars and all Florists' Supplies.

Mail orders given prompt attention.

JOHN CRANSTON & SON, Hamilton, Can.

Mention The Canadian Horticulturist.

DOMINION NURSERIES

ESTABLISHED 1860

Fruit and Ornamental Trees
Shrubs and Vines

WE HAVE NO AGENTS!
WE SELL DIRECT!

Catalogue for 1907, just out, mailed on application

The Smith & Reed Co.,
ST. CATHARINES - ONTARIO

You Want First-Class Peach Trees

CANADIAN GROWN
AT REASONABLE PRICES

WE HAVE THEM—WRITE FOR CATALOGUE AND PRICE LIST

¶We grow a general line of fruit and ornamental stock and guarantee delivery in first-class condition.

Pelham Nursery Company

Nurseries—Pelham Township

Offices—49 Wellington Street East, Toronto, Ontario

Please Address all Correspondence to Our Offices

Mention The Canadian Horticulturist when writing

SEEDS

Producing the most satisfactory results in the harvest
ARE WHAT WE SELL

Our Vegetable Seeds are grown from selected stocks and are used by the most critical Gardeners and Truckers in this Country.

Our Flower Seeds are noted for their striking colors and large bloom.

Sutton's Specialties Always on hand.

Descriptive Illustrated Catalogue
Mailed Free on Application

DUPUY & FERGUSON

38 Jacques Cartier Sq., Montreal

Mention The Canadian Horticulturist when writing

GREGORY'S SEEDS

FREE Our catalog is rich with information for the guidance of farmers and gardeners. It has been a great help to thousands—has been the means of turning many a failure into success.
The great variety of vegetable and flower seeds include the best of the old standard and such new kinds as have proved of value by actual test.

J. J. H. GREGORY & SON.
Marblehead, Mass.

USE FOSTER'S POTS

STRONG
DURABLE
LIGHT

POROUS
AND
SMOOTH

Drop us a post card for Catalogue and Price List.
The Foster Pottery Co., Limited
HAMILTON - ONTARIO

KIL-O-SCALE

The original, most popular and most effective SCALE DESTROYER on the market. KIL-O-SCALE combines the two infallible remedies—SULPHUR AND PETROLEUM. Beware of Oil Solutions that will SEPARATE, endangering the life of the tree. Do not be persuaded to buy inferior imitations. Write for circular, telling what users have to say about KIL-O-SCALE. Our 1907 Seed and Implement Catalogue free. Write for it.

GRIFFITH & TURNER CO., 207 N. Paca Street, Baltimore, Md.

successfully in the west. Many difficulties had to be overcome in getting a fair start in that section of Canada, but now the nursery is capable and ready to supply the western populace with their wants. The growth of the business is evidence of the worth of stock and fairness of price.

The nursery stock of J. W. Wismer, Port Elgin, Ontario, is set forth with descriptions in his new catalog. It includes all the tested and well-known varieties, besides such new ones as prove acquisitions. The climate of Port Elgin is very rigorous, and trees grown there become well hardened and able to stand and thrive in the coldest part of the country. The numerous testimonials printed prove the satisfaction felt by the buying public.

The catalog for 1907 of D. M. Ferry & Co., Windsor, Ont., is well arranged and contains a complete list of the various varieties of seed, plants, bulbs, etc. Their large extent of warehouses and fields are entirely modern in their equipment, so that the best and most up-to-date stock can be supplied.

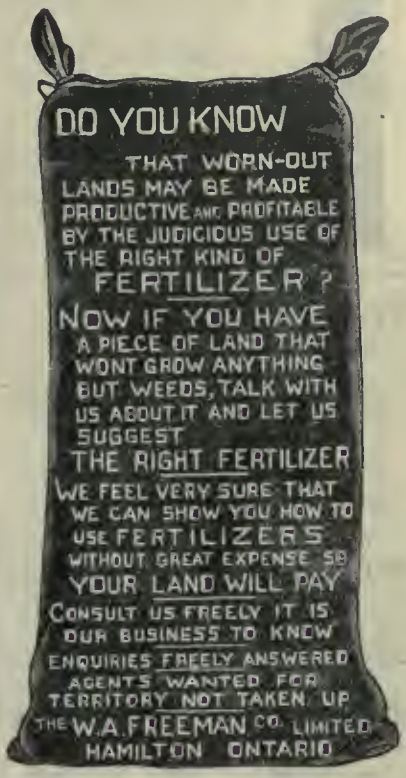
One of the prettiest and most tasty catalogs that has come to our office this year is the spring issue of Arthur T. Boddington, seedsman, New York City. The illustrations are especially nice. All kinds of root, vegetable and flower seeds, bulbs, plants, etc., are described and offered at reasonable prices.

The vegetable and flower seed catalog of Jas. J. H. Gregory & Son, Marblehead, Mass., contains a full enumeration of these commodities. There is a large experimental department in connection with the establishment where new varieties are grown and tested, so that only the most worthy are listed in the catalog.

The fruit book and catalog of Chas. A. Green's Nursery Co., Rochester, N.Y., presents a complete list of trees, vines and plants. This company endeavors to maintain a high standard of excellence in its stock.

"Great Crops of Strawberries and How to

Profit Producing Fertilizers



THE FONTHILL NURSERIES

"Canada's Greatest Nurseries"

NOW IS THE TIME TO ORDER FOR SPRING PLANTING

Hardy Canadian Grown Stock, Clean and Healthy and True to Name

Commercial Apples
Pears for Profit
European and Japan Plums
Peaches, Extra Fine

Write for Catalogue and New Specialty Circulars

Largest Hydrangea Bush in America on our grounds. 10 ft. high, 18 ft. in diameter.

Asparagus, 3 year Roots
Ruby Red Raspberry
Gold Coin Potato
Flowering Shrubs and Roses

Salesmen Wanted
Liberal Terms

STONE & WELLINGTON, TORONTO ONTARIO

Mention The Canadian Horticulturist when writing

FERRY'S Seeds

prove their worth at harvest time. After over fifty years of success, they are pronounced the best and surest by careful planters everywhere. Your dealer sells them. **1907 Seed Annual** free on request.

D. M. FERRY & CO., Windsor, Ont.

Small Fruit Plants

GOOSEBERRY, Red, White—CURRANTS, Red, White, Black—RASPBERRY, Red, Yellow—BLACKBERRIES—STRAWBERRY-RASPBERRY—GRAPEVINES, Campbell's Early, Eaton, Worden, Moore's Early, Salem, etc., all hardy sorts—STRAWBERRY PLANTS—HOUSE PLANTS—ROSES—RHUBARB AND ASPARAGUS ROOTS

ORDER EARLY

WILLIAM FLEMING
NURSERYMAN
P.O. Box 54 Owen Sound, Ontario
Mention The Canadian Horticulturist when writing

Strawberries—'CARDINAL'

New—Cardinal, Three W's, Mead, Minuteman, Chesapeake, Virginia. Older Sorts—Splendid, Parson's Beauty, Ruby, Fountain.
And 100 others from young beds at right prices.

E. B. Stevenson, Ponsonby, P.O., Ont.

Norway Spruce

For Lawn Trees, Hedges and Windbreaks

A large stock of all sizes from 12 inches to 6 feet by dozen, hundred or thousand. Price list upon application.

Campbell Bros. Simcoe, Ont.

Northern Grown Trees

Apple, Pear, Plum, Cherry, Peach, Nut and Ornamental Trees. Small Fruits, Roses, Shrubs, cheap. Specialties: Wismer's Dessert Apple and Mammoth Prolific Dewberry.
Send for free Catalogue—it tells the whole story.

J. H. WISMER, NURSERYMAN PORT ELGIN, ONT.

Spraying for Profit

By HOWARD EVARTS WEED, M.S.

A practical hand-book describing the best methods for suppressing the more common injurious insects and fungous diseases. This book should be in the hands of every fruit man and gardener. It is well worth the price of 15c. a copy. Send for it now, and ask for a copy of our free book catalog.

The Canadian Horticulturist
506-7-8 Manning Chambers Toronto

Grow Them" is the title of a handsome book just received. It is published by the R. M. Kellogg Co., the famous growers of high grade strawberry plants of Three Rivers, Mich. The book tells you just what and how and when to do everything from the time plants are set until the berries are marketed, and how to handle the plants to make them produce larger crops the second year than they did the first. It also teaches you how to improve plants by selection. The book is handsomely printed, and is a veritable picture book. Everybody interested in strawberry culture, either for market or family use, should have it. Send for a copy of the 1907 edition, but send neither money nor stamps, as the book is free to our readers. Address R. M. Kellogg Co., and tell them you are a reader of THE CANADIAN HORTICULTURIST.

Cannas and Groff's new hybrid gladioli are sold by John A. Campbell, of Simcoe, Ont. A nicely printed catalog tells all about them. Write for it.

By 25 years' selection, cross fertilization and breeding, A. B. Howard & Son, of Belchertown, Mass., have been successful in developing a strain of petunias that possess a richness of color and beauty of marking that is distinctively their own. Howard's new star petunias should be in everybody's collection. Send for his catalog.

The finest catalogs in make-up, printing and illustrations that have reached our office are those from the seed firms of England. That of Sutton & Sons of Reading, Eng., is a work of art. One has pleasure in reading it. All the garden seeds worth growing are listed therein. Canadians who desire the best vegetables and flowers that can be grown will do well to consult Sutton's catalog.

A catalog that is a credit to its publishers is that of Jas. Carter & Co., of 53A Queen Victoria St., London, Eng. The print is large, the cuts are excellent and the whole arrangement is decidedly above the ordinary. There is a character in this catalog that is found in few or none on this side of the Atlantic. Carter & Co. offer the leading varieties of vegetable, flower and lawn seeds from selected stock.

I renew my subscription to THE CANADIAN HORTICULTURIST, as I simply cannot get along without it. It is the best magazine of the kind for the money on this continent; in fact, I think it better for Canadians than *The Garden Magazine* and the subscription to the latter is double that of your magazine. Wishing you every success.—G. H. de B., Toronto.

Orchids

Now is the time to place your orders for Spring delivery of freshly imported Orchids. **Our prices are very low, quality considered.** Also large stock of established Orchids on hand

CARILLO & BALDWIN
SECAUCUS, N.J., U.S.A.

THE BEST BOOK ON STRAWBERRY CULTURE ever written, because it explains every detail of the work from the time plants are set out until the berries are picked, and tells how to prepare the plants for a big second crop. 125 Pictures of strawberries and strawberry fields. This book is worth its weight in gold. If we knew your address, would mail you one **Free.**

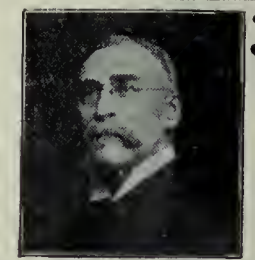
R. M. KELLOGG COMPANY, Box, 570 Three Rivers, Mich.

BETTER FRUIT

Is what every fruit grower should grow.
Is what every fruit dealer wants.
Is what we can tell you how to grow.
Is the only strictly Horticultural Paper in the United States.
Is what you should subscribe for, if you want to know how to realize more money for your fruit.

SUBSCRIPTION PRICE, $1.00 PER YEAR
SEND FOR SAMPLE COPY

Better Fruit Publishing Co.
HOOD RIVER, OREGON
Mention The Canadian Horticulturist when writing


Charles A. Green, Pres.

30 Years' Experience In Fruit Growing

Shall I tell you about it, and how to make a fruit garden? See free book as offered below.

50 Apple, Peach or Plum Trees for $2.50

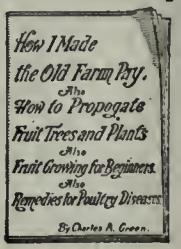
This Book Free For 3 Names

Larger trees of apple, pear, peach and quince at live and let live prices. Bargains in all sizes of apple, peach and plum trees.
Grapevines, berry bushes, asparagus roots and ornamental shrubs and trees our specialty.

Charles A. Green

Has a national reputation for honest labeling, grading and packing. Send for Green's Free Fruit Guide and Catalog, also for sample of Green's Big Fruit Magazine. When you send for these add the name and address of three fruit growers and we will present you with C. A. Green's book telling of 30 years growing fruit. See cut of cover.

GREEN'S NURSERY CO., Rochester, N. Y



The Canadian Horticulturist

Vol. XXX MARCH, 1907 No. 3

Spraying Solutions and How They Are Made

SPRAYING is a means to an end. In fruit growing, the end in view is to produce in quantity a grade of fruit that approaches as near as possible the ideal looked for in the particular variety or varieties grown. Spraying helps the grower to do this. It increases the percentage of high-grade fruit by holding within bounds the ravages of insect and fungous enemies.

The practical value of spraying becomes more and more evident as the seasons go by. Insects and fungi are becoming numerous and are constantly changing their habits from one class of plants to another. To combat them successfully, the work of applying spraying mixtures must be done thoroughly and at the proper time. Every portion of the leaf and branch must be covered with the spray. The nature of the mixture that should be used depends upon the kind of insect or fungus to be combatted, and upon the season of the year. For the benefit of the readers of THE CANADIAN HORTICULTURIST some practical fruit growers have contributed letters on the preparation and handling of some of these mixtures.

MAKING LIME-SULPHUR WASH

"We hear so much these days of different methods of making lime-sulphur wash," writes Mr. M. G. Bruner, of Olinda, Ont., "that it may be of interest to observe my method, which is as follows: I cook the mixture with a steam boiler, a small one of six horse-power. The first thing I do is to start a fire in the boiler. While the water is heating I weigh out 15 pounds of sulphur, which I sift so that there will not be any lumps put into the barrel. I also weigh out 25 pounds of lime and get it ready. I mix the sulphur with boiling water to a thin paste; when adding the sulphur to this water, I stir continually so as not to form any lumps, as they will not break up in the cooking.

"In the barrel that is to be used for the cooking, I place 10 or 12 gallons of hot water. There should be at least 60 pounds of steam in the boiler). Then I put the sulphur paste in the barrel and afterwards the lime. The best stone lime must be used. In a minute or less the lime will begin to slake. The mixture must then be stirred continually so as to prevent it from sticking to the bottom of the barrel. A little cold water should be poured in occasionally to keep the lime from boiling over the top. When slaking has stopped, turn on the steam from the boiler. Apply as much steam as can be used without causing the mixture to boil over. Continue to boil for an hour at least. Do not stop until the sulphur is all melted.

"When the cooking is completed, the barrel will be half full or a little more; *i.e.*, if a 45 gallon barrel is used. Fill it up with hot water. Strain the whole through cheese cloth spread over a fine wire strainer. The mixture is strained into the spray tank, and is then used on the trees.

"The foregoing description applies when a hand pump is used. My boiler will cook enough at one time to fill my power spray tank, which holds 160 gallons, imperial measure.

"I have tried caustic soda, kerosene emulsion and various patent or miscible oils, but none of these are as effective as the lime-sulphur wash when properly prepared and applied. I have not yet tried all the soluble oils. It would be a great boon to fruit growers if they could get a mixture that would be as effective as the lime-sulphur wash and easier to prepare and apply."

The following letter on the lime-sulphur wash was received from Mr. J. W. Smith, of Winona, Ont., the owner of one of the largest peach orchards in Canada, and a man who has had much experience with spray mixtures: "Use 17½ pounds sulphur, 35 pounds lime to 40 gallons of water. Have good, fresh, unslacked lime. Put the sulphur in boiling water and mix to a paste, then put the lime in the boiling tub, and cover it with boiling water three or four inches; then, as quickly as possible, throw in the sulphur paste with the slacking lime, and cover it until it begins to stop boiling, then turn on all the steam and stir occasionally; let it boil 45 minutes. We prefer boiling by steam as it is the cheapest and quickest way. The sooner you can get the wash on the trees the better as it goes through the nozzles much more satisfactorily hot than cold; always spray with the wind, and be sure you spray every twig. We have a large vat of boiling water always on hand a little elevated so that all we have to do is to turn on the tap and let it run into the boiling tubs. We would not recommend boiling this mixture with its own heat."

Interesting information is contained in a letter from Mr. W. A. Hunsberry, Jordan Station, Ont., as follows:

"The lime-sulphur wash is one of the best mixtures we have. I have used it for six or seven years and have found it a benefit not only in preventing the scale from attacking fruit trees and as a means of destroying scale, but also in cleaning the bark and making it smooth and fresh. If we strengthen the bark we will have a healthy tree, and will get a larger percentage of first-class fruit. I have noticed also that the smoother we keep the bark the less we are bothered with insects. The rougher the bark the more hiding places for the insects, and the grower cannot get at them so easily; therefore use the lime-sulphur mixture. It will pay for all trouble and expense.

"The mixture should be boiled thoroughly. It will work better in the spray pump and spread more evenly on the trees. Some growers in this locality have used caustic soda. But I do not think that it gives as good results as when the mixture is boiled. The more soluble you get the two ingredients mixed the better it will spread on the trees and work in the sprayer. It should be boiled for one hour and a half."

Regarding the question of treating the San Jose scale, Mr. Robert Thompson, of St. Catharines, Ont., wrote:

"First, get rid of all useless and unprofitable trees and varieties, then

Each Number the Best

The improvement in THE HORTICULTURIST within a year is marked, and each number as issued appears to be better than the preceding ones. This improvement is acknowledged by everyone here qualified to express an opinion on it. The column of questions and answers, the experience column, is a valuable one, and will, I hope, increase in length and interest from month to month. —J. Cavers, Sec'y Oakville Hort'l Society, Oakville, Ont.

prune carefully and shorten-in the other trees. If the fight to control the scale forces us to grow low-headed orchards, to shorten-in all of our trees so that we will have a new growth of wood every season, and to keep our trees so that the fruit may be gathered from not higher than a six-foot ladder, it will not be an unmixed evil but possibly a blessing in disguise. Second, thoroughness in application of the remedy or spraying material. No matter what material is used or what variety of pump is handled, cover the tree and branches thoroughly. Do not accept statements of agents who tell you that their material will go farther as it spreads on the branches after being applied. They do this so as to induce you to purchase some of the more costly remedies. If these remedies are diluted too much or

An "Auto-Spray" at Work in a Vineyard

all of the twigs are not covered at the end of the season, you will invariably find the scale very prevalent.

"Many mixtures are being placed on the market. Every season some of these are discarded owing to failure, others stay with us a little longer, or may be used because of fancied ease in application. For the commercial orchard, nothing equals the lime-sulphur remedy properly boiled, because of its cheapness as compared with all the others, and because of the good work that it does, as it remains on the trees throughout the season; it can be seen on the trees now at date of writing 10 months after the application.

"The lime-sulphur wash can be prepared by boiling with the heat of the lime, but this is not safe to depend on as some of the barrels may not get sufficient cooking, owing to some defect in the lime, or something else may result, where this is applied, in not killing all the scale. A better plan is to arrange for a number of growers to have an engine or boiler and cook by steam. Where this is not available, an agricultural boiler can be rigged up. Where the steam is used, the cooking can usually be done in about one hour. When the agricultural boiler is used it will take longer. When boiled with steam or agricultural boiler bring 12 to 14 gallons of water to the boil, then throw in 20 pounds of good lime and quickly add 18 pounds of finely pulverized sulphur. Stir occasionally. Dilute by adding enough water to make 45 to 50 gals.

"Commence spraying early in the season Spray the sides of the trees from the windward side, then watch until the wind blows from the other way, and do the other side; a good, stiff breeze is preferable. This helps to carry the spray to points on the opposite side of the tree and not only ensures better and more thorough work, but also obviates the disagreeable features of the mixture falling back on the clothes and person when spraying is done in calm weather.

"For the encouragement of new beginners, I may say that those who have sprayed three and four years with the lime-sulphur mixture are nearly all planting out larger acreages. They feel convinced from past experience that the scale can be kept in check and the trees healthy. This is a strong point in favor of lime-sulphur. The wash prevents leaf curl in the peach, is a good fungicide and can be used on apples instead of copper sulphate before buds open. Trees sprayed with it show darker and glossier foliage during the summer and the bark is made clean. The grower who takes care of his orchards now will be well repaid for years to come, and the careless grower will be driven from the business."

ARSENITE OF LIME

A comparison between arsenite of lime and arsenate of lead as regards their value as insecticides for mixing with Bordeaux mixture is made by Mr. Jos. Tweddle, of Fruitland, Ont., in the following letter: "For fruits, arsenite of lime when carefully handled in the early summer gives almost as good results as arsenate of lead, and is much cheaper. White arsenic must be boiled with fresh lime as follows: Take one pound of arsenic, two pounds of fresh lime and one gallon of water, boil briskly for 45 minutes, then use one and one-half pounds of the mixture to one barrel of Bordeaux. Apple foliage is much less resistant to damage by this insecticide after July than before. My experience shows that three times the above-mentioned strength may be used in June without burning the foliage, and that one-half that strength will burn it in July and after. Inexperienced persons, however, should use the arsenate of lead, as it is safe to use full strength and is easy to prepare. Use three and one-half pounds per 50 gallons of Bordeaux mixture."

ONE GROWER USES ORDINARY LYE

Spraying with old-fashioned lye, to clean the bark of trees and to destroy scale, is practised by Mr. E. Hipple, of Beamsville, Ont., who has faith in its effectiveness. The process of making the lye is, in the words of Mr. Hipple, as follows: "I take a barrel (two or more if required) and bore three holes in the bottom near the rim. The barrel is placed on a raised plank. The holes in the bottom are covered so that the ashes to be used will not clog. The barrel is then filled with ashes, firmly stamped in. On this is poured about 12 quarts of water a day until the lye commences to leach out, then three or four times this quantity of water is added. This is continued until the lye becomes weak. The lye so made is used for spraying diluted with an equal quantity of water."

Hardy Late Cherries

What are the best hardy cherries as late as or later than Montmorency? Richmond is too early. Robins and cherry birds take them.—C. W. B., Prescott, Ont.

One of the best hardy cherries which comes in just after the Montmorency is the Ostheim. The English Morello is also later than the Montmorency but it is not as hardy as the Ostheim. Another very late kind is Brusseler Braun.—Answered by W. T. Macoun, Horticulturist, C.E.F., Ottawa.

No tree requires regular pruning so much as the peach. Low-headed peach trees are best.

Notes on Spraying Mixtures

Prof. W. Lochhead, Macdonald College, St. Anne de Bellevue, Quebec.

THE value of spraying in orchard practice is seldom questioned nowadays in spite of occasional unfavorable results. It must be acknowledged that while we have learned much about the use of insecticides and fungi-

Spraying in Niagara District

cides, much remains to be known. The occasional *lapses* must somehow be examined and explained. Fruit growers sometimes show a little impatience (naturally perhaps) while waiting for accurate information from those whose duties are to secure by careful experiments that accurate information. They sometimes take as *proven* the statements of some "glib" speaker, who, while pretending to be a self-sacrificing hero, is perhaps serving his own ends in advocating some new insect or fungus destroyer. Experiment shows that it is always hazardous to apply on a large scale any remedy which has not been endorsed by the authorities, and its limitations noted. For example, soda Bordeaux, or the "Burgundy mixture," was announced two or three years ago as a better mixture than the Bordeaux mixture. Many fruit growers began using it on a large scale, and they added Paris green. The results were of course disastrous for the reason that the soda unites with the Paris green to form an injurious soluble arsenic compound; on the other hand, the lime of the Bordeaux forms a harmless insoluble arsenic compound. Moreover, recent experiments go to show that common Bordeaux gives on the whole better results than soda Bordeaux, and is therefore to be preferred by the fruit grower.

Again, crude petroleum was heralded as a very efficient destroyer of the San Jose scale, for good results were obtained when applied to apple and pear trees. But it was soon discovered that peach and plum trees were often killed by an application of crude petroleum, and even apple and pear trees after a few applications showed symptoms of injury. Recently also it has been observed that strong, healthy shade trees are injured when sprayed too copiously with kerosene emulsion solution. It is now known that kerosene or crude petroleum falling on the ground during the spraying operations is retained for several years in the soil, gradually finds its way to the tender rootlets, and kills them. It is very probable, therefore, that the continued applications of crude petroleum year after year to apple and pear trees will result in injury, and orchardists should guard against this by giving up the use of this dangerous substance.

More information also is given us every year regarding the lime-sulphur mixture. Recent reliable experiments carried out for several years both in the orchard and in the chemical laboratory tell us that vigorous cooking need not be continued longer than 40 minutes to get all the sulphur into the solution; and that the presence of more than five per cent. of magnesia in the lime causes a considerable loss of sulphur. In view of the fact that much of the lime made in Ontario contains considerable magnesia, more attention should be given to the purchase of good stone lime, free as possible from magnesia.

Some experiments were also made as to the effect of dipping dormant fruit trees before planting. Apple trees were not injured; but peach trees were frequently injured. These results may have some bearing on the present agitation among some nurserymen to have nursery stock dipped instead of fumigated.

The Oyster-shell Scale

Prof. W. Lochhead, Macdonald College

THE Oyster-shell Scale, often also called the Oyster-shell Bark-louse, is the most abundant and widespread insect of the apple orchards of eastern Canada. It is everywhere in evidence, from the far-famed Annapolis Valley in Nova Scotia to the Great Lakes. Its diminutive size and its grey, bark-like color seem to suggest that there is "nothin' a-doin'" where it exists; but there is no enemy of the apple tree more insidious and that requires more attention than this little oyster-shaped scale. I have seen many large apple trees rendered practically worthless and almost lifeless by these insects. Allowed to breed without hindrance for a few years, the scales had practically encrusted the bark of these trees, and had sucked and used the sap that should have contributed to the growth of the new parts, the new wood and the new buds. The trees became "barkbound," and were unable to expand. I saw the same trees a year later, after they had bene scraped and sprayed carefully during the late winter with whale oil soap solution, (two pounds to six gallons of hot water). Great rifts had formed in the bark, rendered soft by the soap solution, and in the rifts new cork was forming. The

A Wallace Sprayer at Work in Field of Potatoes

diameter of the stem had increased at least an inch; the oyster shell scales were gone; and the trees were enjoying a vigorous renewal of life.

Where trees are not suffering to the extent just described, the best treatment to get rid of the oyster shell scales is to give two applications of whitewash during the winter. The whitewash is made by slacking about 60 pounds of good fresh lime in 40 gallons of water. Such a wash can be sprayed readily if it is strained before it is poured into the spray pump barrel. The two spray-

ings should be made either in December and February or in January and March. Under the action of the weather, the flakes of lime will peel off, bringing the scales with them.

In San Jose scale-infected districts, where the lime-sulphur application is

The Oyster-shell Scale

This cut illustrates a male scale (upper right corner) and a female scale—both greatly enlarged. The various molts in the development of the scale are shown. Cut loaned by the Department of Agriculture, Toronto.

used, there is no need of using the lime-wash. The former treatment is quite effective.

The oyster-shell scale is single brooded. It passes the winter in the egg state beneath the scale. If a scale be turned over carefully with a pen knife, from 40 to 60 minute, cream-colored eggs will be found with the aid of a magnifying glass. The eggs hatch about the first of June, and yellowish, crawling lice make their appearance. These may be seen crawling about the limbs for a few days; but they soon settle on the bark, insert their tiny sucking beaks into the tissues, and begin feeding and making a scale to cover themselves. They grow slowly; but in late September and early October they become fully grown, when the females lay their eggs.

Kerosene emulsion solution, or some good soap solution, (consult O.A.C. Bulletin 144, pages 30 and 36, for preparation of kerosene emulsions or soap solution) is effective if applied when the lice have just hatched from the eggs in early June and are moving about in the limbs; but most orchardists prefer the winter treatment with lime wash.

It is likely that these insects are carried on the feet of birds from tree to tree, and from orchard to orchard. It should also be borne in mind that the lilac, raspberry, rose, currant, spiræa, cherry, pear, plum, hawthorn, ash, maple, birch, poplar and other plants may harbor this insect, and from these it may spread to the apple.

In any plan of treatment of an infested apple orchard, therefore, it is advisable to take into account the probable infestation of shrubs in the immediate vicinity. On the other hand, there is comfort in the thought that the orchardist in his fight against this scale has three or four able insect assistants; namely, minute parasites, which usually destroy a large percentage, but not all, of the eggs that are lying under the scale. We cannot, however, leave the work of extermination entirely to the parasites; we must do our share of the work if we desire thrifty trees.

Ten Pointers on Pruning

Prof. F. A. Waugh, Amherst, Mass.

Pruning has various objects and is practised on many diverse sorts of plants; therefore, the same rules cannot apply in all cases.

Pruning during the dormant season tends to promote wood growth rather than fruit bearing.

Pruning during the growing season —March, June and July—tends to check wood growth and to promote fruitfulness. The vegetative and the reproductive functions, within certain limits, are reciprocal.

Root pruning (which is seldom practised) tends very strongly to promote fruit bearing and conversely to check wood growth.

Pruning may be done during any month of the year, but March and June

Apple Tree Before Pruning

are the best months. It would probably be a distinct improvement in most orchards in the province of Quebec if the principal pruning should be given in June instead of March.

Pruning should be methodical and regular. A certain amount of work should be done each year instead of once in five years. This rule is very important.

The objects of pruning are (a) to repair injuries, (b) to correct faulty growth, (c) to influence the bearing habit of the tree. Pruning is not an object in itself. Therefore unless there

Same Tree After Pruning

is some clear reason for it, do not prune.

Each shoot or branch removed should be cut off smoothly and as close to the parent branch as possible. Large wounds should be painted with white lead.

The best implements for pruning are pruning shears. A sharp saw will sometimes be needed, but not often, except on trees which have been neglected. An axe should never be used.

Pruning will not give satisfactory results by itself. It must be accompanied by good spraying, good feeding and good management in other respects.

Repairing Girdled Trees

Orchard trees are often girdled in winter by mice and rabbits. When the part girdled is small, cover with grafting wax before the exposed wood dries out. This usually will save the tree.

In cases where the girdle is entire and the cambium or green layer beneath the bark completely severed, the latter will have to be connected by bridge-grafting. Cut a number of scions, long enough to bridge the girdled space and bevel the ends. Insert them around the tree spanning the injury, with the cut ends in contact with the cambium above and below. Cover with wax all cut surfaces that are exposed. Badly girdled trees usually die. It is well, therefore, to use judgment before attempting a remedy.

Head back the peach trees each year.

Hardy Fruits for the North

W. T. Macoun, Horticulturist, Central Experimental Farm, Ottawa

FRUIT culture is gradually extending northward in Canada; and, while the culture of some kinds of fruit may not keep pace with the settlement of the country, there is no doubt that in due time hardier kinds will be originated, from those already being grown near their northern limit, which can be grown much further north. Some of the kinds already known would succeed further north if proper care were taken of them. If a tree ripens its wood thoroughly, it will stand very low temperatures; hence, in the north, everything possible should be done to bring this about. Low ground should be avoided, as where there is so much moisture the growth is likely to be later. Rich soil should be avoided as, if the soil is rich, the trees will make strong growth and not ripen so well. High ground, providing there is protection from wind, should be chosen, as there is less danger of spring frost there than in the hollows, and spring frosts do much damage to fruit buds or blossoms in the spring in the north. This high ground will not be so rich nor as moist as the low lying land, hence growth will not continue late. Northern exposures should be chosen for most fruits in the north, to avoid, as far as possible, the bad effects from trees starting to grow early and then being injured by frost. Trees on a northern exposure are not so liable to sunscald, which occurs in late winter and early spring when the sun thaws out the sap on the south side of the trees, and a severe frost coming at night and freezing it again organizes the tissue and causes the bark on the south and south-east side of the trees to die. As the hard maple gets near its northern limit, it is only found on or near tops of hills; as, like fruit trees, it gets there conditions as near as possible like those further south. Good natural drainage of the soil is much more necessary in the north than in the south; if possible, a soil with a gravelly subsoil should be obtained.

APPLES

There are a few varieties of apples, mostly of Russian origin, which can be grown successfully in the north, if given as near as possible the conditions just outlined. These are, in order of ripening, Blushed Calville, Lowland Raspberry, Charlamoff, Duchess, Anis, Okabena, Antonovka, Patten Greening, Hibernal. In addition to these there are the Whitney, Martha, Transcendent, and Hyslop crabs, which will grow where the climate is very cold, providing they get conditions that will cause an early ripening of the wood. The hybrids originated by Dr. Wm. Saunders are very hardy and, where no apples can be grown, will be found quite useful.

PLUMS

Only the earliest plums are useful in the north, as frost comes in the autumn before the later kinds are ripened. These early plums are mostly improved varieties of the native species. They are Odegard, Aitkin, Bixby, Mankato and Cheney. The earliest and best varieties of the wild plums found growing wild should be cultivated.

PEARS AND CHERRIES

Pears and cherries are not a success in the north, and it is a waste of money to try them. The Sand Cherry and the Compass Cherry, which are really more plum than cherry, are very useful in the north, the latter especially, where it has been tried.

CURRANTS

The wild species from which the cultivated black and white currants are derived, are natives of the north; hence, currants are among the hardiest fruits and are of great value in the north. Some of the best sorts are: black, Saunders, Collin's Prolific, Black Victoria; red, Victoria, Pomona, Red Cross, Wilder, Cherry, the two last being apparently not quite so hardy in fruit bud as the others; white, the White Grape is one of the best.

Red raspberries succeed well in the north, especially where there is good depth of snow. Some of the hardiest varieties are Herbert, London, Clarke and Marlboro, the first being the best of these. A good plan in the north is to bend the canes down in the autumn and cover the tips with soil to hold them there; the canes will then be sooner covered with snow. Black Cap raspberries are not satisfactory.

GOOSEBERRIES

Gooseberries succeed well in the north, the best varieties being Downing and Pearl. The Houghton, though smaller than either of these two, is apparently even hardier. Red Jacket is the best red variety for the north.

Strawberries will do well in many places. They need protection in winter, the best being a good covering of snow; but where a good covering of snow is not very certain, a covering of marsh hay will be found very good. Strawberries often suffer from spring frosts in the north, and for this reason a site should be chosen where the snow will lie longest. The varieties which have suffered least are Beder Wood, Warfield, Lovett, Sample, Williams, Buster and Crescent; hence, these should be among the best to plant.

American Plum Trees at Central Experimental Farm, Ottawa

The photograph was taken by Mr. Frank T. Shutt when the trees were in bloom last year. It shows the type of plum trees that can be grown in the north.

The grape vine is one of the easiest of all fruit-bearing plants to control when pruned systematically and regularly.

Thin out the fine growth twigs on outside of Spy trees.

Future of Apple in Ontario

A. McNeill, Chief, Fruit Division, Ottawa

(Concluded from last issue)

I HAVE referred to the height of land running through the central portion of Ontario, beginning at Queenston and constituting the bluff from Queenston to Hamilton. This height of land, continuing, as it does, north to the Georgian Bay, slopes much more rapidly towards the east than it does towards the west as it approaches the Georgian Bay, and it begins near Collingwood to once more take the high cliff form similar to that between Queenston and Hamilton. It is upon the eastern slope of this height of land, near the Georgian Bay, that we find some of the finest orchards in the world. It is a happy blending of soil, situation and climate that makes it an ideal country in which to grow winter apples. Here new orchards are being planted very rapidly, and as a general thing the bearing orchards are composed of comparatively few varieties. The fruit growers of this district had learned the lesson taught by the experience of the older orchardists in southern Ontario and gave their orders so as to have, say, three, four or a half-dozen varieties in their whole plantation. They also had sufficient confidence to plant in large blocks of 10, 20 or 30 acres, and are now reaping the reward of their forethought.

It is not an uncommon thing at all in this district to find large orchards that are paying dividends on a capitalization of $500 to $800 an acre. When you consider that the land without trees is valued at from 50 to 75 dollars an acre, and that the cost of putting in an orchard and caring for it until it comes into bearing is probably not more than a hundred dollars per acre, it can readily be seen that the whole operation is a paying one for the farmer. The drawback is that he has to wait 10 years for his dividends, and in this glorious age, when fortunes are being exchanged every few hours, 10 years looks to be such a hopelessly long period that even the patient farmer sometimes dismisses the scheme in disgust.

The counties north of Lake Ontario, styled district No. 3, owe their high reputation as an apple region, partly to the climate, partly to the geological formation, and partly to the shrewdness of the orchardists in learning lessons from the experience of the older orchardists in the west. Geologically, the best apple orchards in this district are in what is known as the Iroquois Basin, extending to the high land at varying distances from the present shore of Lake Ontario. This land is extremely fertile and has the climatic advantages of the lower situation protected by the high ground to the north. Many very excellent orchards, however, are grown on the high land just beyond this basin till it merges into district 4, where only the hardiest trees will grow.

Province of Ontario Divided into Four Districts for Apple Culture

Large orchards are the rule in district 3. The varieties have been well selected to meet the requirements of a winter trade. Orcharding is a specialty with many growers, and the enterprise is considered extremely profitable. This district is well adapted to the usual methods of the apple operators. Owing to the larger orchards, and the fewer varieties, the cost of picking and packing is much smaller than in district No. 2. The recommendation here is, of course, to continue along similar lines, planting the hardy winter varieties.

Cold storage is quite unnecessary for winter fruit in district No. 2 and 3. They are, consequently, 25 cents a barrel, at least, ahead of winter varieties grown anywhere else to the south. The business, therefore, of growing apples might possibly, though it is exceedingly improbable, become unprofitable in New York state, while the growers in districts 2 and 3 could continue with a margin of 25 cents a barrel, at least.

District No. 4 contains probably much less than 1,000,000 apple trees, many of these of unsuitable varieties. The area covered is extremely large, so that, with the exception of a few small sections in this district, it cannot be regarded seriously in the light of a business. Nevertheless, there is no part of Canada where a larger return might be made than in this district. They grow to perfection here the Fameuse, the McIntosh Red and the Wealthy. In addition to these the Alexander and the Wolf River can be grown quite profitably; they are much better apples and better keepers than when grown further south. Nevertheless, they are not of extraordinary quality. The Fameuse and the McIntosh Red stand at the head as dessert apples. If the excellence of these apples as a dessert fruit were recognized, and if the growers would but pack in boxes after the style of the Pacific slope fruit, the business would be extremely profitable. There is a splendid opening for any packers who will take up the packing of these apples in this district, and cater to the very high class of customers—those who are willing and able to pay a large price for a most excellent article.

SUMMARY

To sum up the situation generally, I should recommend that district 1, or the counties along Lake Erie, should devote themselves very largely to early fruit.

The pressing need in district No. 2, or the counties along Lake Huron, is better organization for harvesting and selling. Cooperative associations are an absolute necessity in this district of small orchards, with many varieties.

What has been said with reference to the Ottawa and St. Lawrence valleys is equally applicable to many parts of the central high counties of South Grey, Wellington, Waterloo and Perth.

The Georgian Bay and Lake Ontario counties, district No. 3, will undoubtedly devote themselves to the winter varieties, and we can look for a large increase in the acreage of orchards on these lines.

I have less hope that many new orchards will be planted in district No. 4. Nevertheless, if cooperative associations were formed, that would induce a somewhat better culture, and introduce box packing, fruit growing would become one of the leading industries.

Results in Growing Gladioli*

H. H. Groff, Simcoe, Ontario

PERSISTENT and continuous activity, with the use of the best material obtainable from all outside sources is the price of the success that I am able to claim in the interest of civilization and horticultural science.

Some Types

For an unknown man in an obscure town, in a country of slandered climate, to bring a semi-tropical plant to Canada, as the foundation for a strain of world-wide recognition, seemed the height of folly and a deliberate courting of failure and loss; and it did not take me long to discover that to secure more than partial success meant a severe and persistent fight.

I found the conditions of soil and climate admirable, and the absence of long-continued periods of atmospheric humidity most congenial to the work of successful crossing. Although the season for maturing late crosses is unfavorable, I overcame this difficulty in securing the admixture of mid-season and late-flowering types by cutting the immature seed spikes on the first threatened frost, and maturing in water a month later—a process requiring much time and trouble—but as pollen from young, early flowering types (which bloom till frost) was used, I soon had the valued characteristics of the later flowering sections available for normal use at a more favorable season, a victory over adverse conditions of incalculable value.

Again, I found that our clear, dry atmosphere, so favorable to success in crossing, also frequently wilted the flowers—an effect not only making rapid work impossible, but most prejudicial to the "taking" of crosses so made.

This difficulty I overcame by daily carrying the pollen over until the following dawn, when I found that the work could not only be accomplished in far less time, but that the percentage of successful crosses was most materially increased. The two foregoing original practices are the result of a struggle for control and, as I have never heard of them being advised, I may include them in this record of results.

When I began this work over 15 years ago, although Europe had been engaged on it for 100 years, the ground was only broken—varieties lacked vitality, reproductive powers and adaptability to changed conditions. My first work covered a complete series of violent out-crosses in which every section was made use of to bring the desirable features possessed by each under control for transmission in cross-breeding. From the foundation work of those first years, by the aid of selected types as sires, according to the practice of animal breeders, has this control been handed down with continuous yearly progression until the past season.

In America, the flower was discredited, and the demand so influenced by its lack of quality, value and beauty, that growers thought of allowing large blocks to freeze in the fields with the view of stiffening the market; certainly not a very progressive idea. The advent of my new hybrids changed all this, and the exhibits made at the Pan-American Exposition where they were awarded a gold medal, and at the St. Louis World's Fair, where they secured the grand prize, not only re-popularized the flower, but exercised a favorable reflex influence on existing low-grade stocks. Thus, no existing acreage has been displaced, but the values have been improved, with over 100 acres of the highest quality in the world added to this country, of such excellence as to enforce commercial recognition throughout the civilized world. Surely this may be included in the record of results in growing gladioli.

A Field of Bloom

My practice has proven that not only can the scientific worker do all that he may sanely plan to do, but he will find that from year to year mutations will appear beyond the range of the area of his expectations, of such progressive value, that he will be led onward by an ever lengthening and broadening horizon—beyond the conception of the human mind. The past season afforded an in-

*Extracts from an address presented to the American Breeders' Association at Columbus, Ohio, January 18, 1907.

creased number of proofs as to the correctness of the system of breeding advocated by me. I repeatedly collected in the field new varieties of special merit, supposing them to be the same, until compared in detail, when the transmitted parental characteristics of each collection was distinctly traceable, but with sufficient variation as to make each variety valuable, each bearing distinctive qualities of value under the diverse cultural conditions to which they inevitably must be subjected.

Specimen Spikes

It is not easy for me to illustrate by comparative description the highest points of results claimed by me. If all were gladiolus experts, it would be much easier to secure appreciation. One effective illustration will assist however.

During the earlier years of my experience in securing commercial efficiency, the invariable cry was, "Send no red shades," In 1905, Mr. Cowee was offered $5 for a single corm, and I was offered $10 for one of the same variety, a brilliant red, both offers being from amateurs of moderate means, and I may say that no such offer was ever made to me for a variety of any other color. A single spike of six flowers measures one foot wide by two in length, and is so effective as to centre attraction in a field of thousands of other varieties. This variety is being rapidly multiplied for early introduction, but you will be interested in learning that I have types of later origin that will supersede it in due time. You will of course, expect this additional result.

The commercial demand for high-class lights has now been filled by the thousands of new varieties originated by me during the first 10 years of my work. Selections bred from this material have given me thousands of newer and more advanced types which have been crossed and multiplied during the past five years for future introduction, and will constitute as marked and distinct an advance as did those shown at the expositions referred to. The value of some of these is beyond estimate.

The present commercial yellow is deficient in color, quality and multiplying qualities. This need will shortly be filled by thousands of new varieties developed by me under the same practice that produced the new light section, all varieties of equal and greater quality than the few novelties issuing from European sources under name.

All other desirable colors are receiving the same attention and improvement by the same system of selected breeding. Among all of these are remarkable types of promise beyond my expectations, individual varieties of such special qualities as to be beyond description, for want of adequate comparison.

I have referred to our geographic advantages, but these are by no means sufficient for my personal realization of the best commercial results. Although my season is nearly a month longer than even the northern part of our peninsula, it is fully a month too short for the full maturing of the cormels of many valuable and useful varieties developed from late maturing material. The variety named "America," erroneously classified as Childsi by the purchaser and introducer under that name, has been grown and sold by me in collections for the past 10 years. Its annual cormel production is from 2,000 to 5,000 per cent., but with me a comparatively small percentage mature annually. Of course such experiences are to be expected in work on a semi-tropical plant, and afford proof of my public contention on this point, many years ago, before this experience proved the correctness of my then expresesd theory. While I have knowledge of many similar experiences, the naming of this one of my hybrids, "America," has made that variety useful as an illustration of a scientific fact.

As I have referred to the fact of scientific results I beg to record: That crossing from varieties tending to double has induced the production of twin corms from single seeds; that bud variation, partial the first season and complete the second, has produced a fixed new type, sporting from one apparent equal fixity; that atavism of æsthetic and commercial value results from the intercrossing of advanced types of diverse parental extraction, the flower form of the iris, a plant of the same natural order, having been brought from the ages long past and replacing the normal form of that of the original species; that racial qualities are as potent and capable of direction in breeding for specific results in plant, as in animal life; that no

Floral Fan of Gladioli

simple or limited crossing can produce the value, quality and satisfaction equal to those resulting from unlimited removals from the wild species on the lines of scientific selection, guided by learned human intelligence; that the attainment of the highest success in results is easily secured by cultivation of the perception, some learning, an open mind, use of the best material and unlimited work.

A Currant Hedge

Albert D. Verrault, Village des Aulnais, Que.

The currant hedge illustrated by the accompanying cut was planted several years ago in a single row, the plants being set 18 inches apart. At the time of the first pruning, which was five years ago, the bushes measured from three to four feet high, but were disgraceful in appearance. The branches straggled in all directions and occupied a large space. It was decided to trim the row as a hedge. About one-third of the growth was removed in May when the leaves were out and the operation was repeated early in July.

Since then, they have been pruned at the same height and width each year. They are pruned back to the old wood, as white and red currants bear on wood that is at least two years old. When pruned thus, the fruit is formed and becomes visible on the top and sides of the hedge.

Currant bushes trained in this manner retain their fruits until killed by the frost. The fruits are not picked for consumption, but such may be done should the planter desire. The White Grape and Fay's Prolific planted in two rows, five inches apart, and one foot between the plants in the row, make a fine hedge.

A Durable Whitewash

Will you kindly give directions for making a whitewash that will not rub or wash off?—H. R., Georgetown, P.E.I.

The following formula is said to furnish a whitewash of this character: Dissolve two pounds of ordinary glue in seven pints of water; when dissolved, add six ounces bichromate of potassium dissolved in pint of hot water. Stir mixture well, then add sufficient whiting to make of usual consisteney, and apply in ordinary manner as quickly as possible. This dries in a very short time, and by the action of light is converted into a perfectly insoluble waterproof substance, which does not wash off even with hot water, and, at the same time, does not give rise to mold growth, as whitewash made up with size often does. It may be colored to any desired shade by the use of a trace of any aniline dye or powdered coloring matter and, once applied, will last for years, while by the addition of a small proportion of calcic sulphite, its antiseptic power is much increased.

Timely Topics for Amateur Gardeners

IF you have not ordered your seeds, trees, plants, tools, fertilizers and spraying supplies, do so now, so as to avoid the spring rush and get better goods for the same money. There are various important reasons why it is to the advantage of the purchaser to order now, rather than later in the season. You have more time to plan a better garden and to make the selections that you desire. You run no danger of substitution on the part of the seedsman and nurseryman. When planting time comes, you will have a better chance to see that the right things are planted in the right way and at the right time. You will get your trees and plants as soon as it is safe to ship them. The best gardens are those that have been planned beforehand. Amateurs with sufficient foresight to order their supplies early, have gardens in which imagination has been used. They have the newest and earliest vegetables and fruits of summer and some that will last all winter.

In the February number of THE CANADIAN HORTICULTURIST, a list was given of standard varieties of herbaceous perennials and a short list of annuals. No mixed border, however, would be complete without a few hardy garden lilies. One of the best of these is the grand old tiger lily, *Lilium tigrinum*, at one time so common, but now seldom seen in our gardens. *Lilium Candidum*, *L. superbum* and *L. Canadense* are also among the best kinds for flower gardens. The Japanese lilies such as *L. rubrum*, *L. speciosum* and others are not so hardy as those before mentioned but are grown with success by many amateurs. They require careful protection in winter and are somewhat liable to disease. A clump of lily of the valley should be included in the plan for next spring's garden. Plant them wherever they will not be disturbed and in a position that is shaded.

Some of the best low-growing flowering shrubs should be planted in the mixed border if there is room for them. Among the best of these are *Weigela rosea* and *W. alba*, *Kerria Japonica*, *Deutzia gracilis*, *D. parviflora*, *Spiræa bumalda*, the double flowering *Spiræa prunifolia*, and the herbaceous hibiscus. In a border of large dimensions some of the larger-growing deutzias, forsythias, lilacs and spiræas may be used. Unless the border is large, however, these are better placed in clumps or as individual specimens on the lawn. A rose bush or two of the *Rosa rugosa* type should also be included.

The Common Currant Makes an Excellent Hedge

THE WINDOW GARDEN

Plants in the window garden will require to be watered thoroughly at this season so that all the soil in the pot is moistened. Late in March is the best time to re-pot the hardiest kinds of window plants such as geraniums, cyperus, ferns, and plants required for summer decoration.

If plants get frozen keep them from the light and somewhat cool. Syringe them well and gradually bring them to the light and heat. Cut away all the black and frozen stems so as to force them to shoot out new growth.

Cineraria plants are subject to green fly or aphids, especially on the underside of the foliage. These insects are hard to combat on this plant. Tobacco water is a fairly good remedy. Start early in the season, and apply the solu-

tion regularly about once a week. When the plants are out of bloom, throw them on the rubbish pile as they are of no further use. Cinerarias are not generally successful as window plants; they are better suited to the greenhouse.

Pots of flowering bulbs such as narcissi, tulips and hyacinths should have a plentiful supply of water when in flower. When the flowers are faded, the soil should not be allowed to dry out. Stand the pots in a place where they can still have some light and only a little sunshine, and dry the soil gradually. When the foliage shows signs of decay give the plant less and less water until the foliage has become quite yellow. In spring, as soon as the ground is in proper condition, the bulbs may be planted outside in the border. Place a stake to mark the spot where they are planted. Do not disturb them when digging. If left undisturbed for a year or two, they will make a useful and permanent addition to the border. Bulbs forced into flower early in the season in pots, are of little or no use for pot culture in the second year.

Freesias should not be dried off hastily. After they are out of flower, give them water less frequently until the foliage is quite yellow, when water should be withheld altogether. Keep them dry in the pots until next season.

Cannas for planting outside at the end of May or early in June may be potted late in March or early in April.

Hydrangeas, oleanders and similar plants can be brought to the light and started into growth. Put them into larger tubs if necessary.

Old tuberous begonias can be started into growth now. If the tubers have been kept in the pots during the winter, shake out the old soil and re-pot in good, rich, loamy potting soil, mixed with a small quantity of sand. Use plenty of drainage, and water thoroughly after potting. Water then should be given sparingly until the plants have well started into growth.

Some flowering and foliage begonias, including Rex varieties, can be potted. Give good drainage, and water as advised for tuberous begonias. The soil, especially for the Rex variety, should have about one-quarter leaf soil added to that recommended for the tuberous variety. Among the best varieties for the window are *Begonia Thurston, B. Haageana* and *B. nivea, B. fuchsioides, B. rubra* and others.

Cuttings of fuchsias, geraniums and verbena will strike readily in sand if vigorous young growth can be secured. Begonia cuttings had better be left until late in April before attempting to strike them.

Seeds of nasturtium for window boxes may be sown. Do not sow thickly, as they do not transplant as easily as many other varieties. Place two or three seeds in a three-inch pot. To secure early flowers of mignonette, sow 8 or 10 seeds in same sized pots as mentioned for nasturtiums. A few pots of petunias, verbenas, cosmos and lobelia also should be sown, as they require to be early to give good flowering results. Antirrhinum and scabiosa seeds may be sown in pots the end of the month.

AMONG THE FRUIT TREES

This is the best time of year for grafting fruit trees. If you have an apple tree that is not producing fruit that you desire, it can be grafted with scions of good varieties and they will bear in three years. Grafting is interesting work, and can be performed by an amateur who will give the necessary attention to details. Have you ever seen a fruit tree bearing a half-dozen varieties or more? If not, why not try the experiment for the fun of the thing? Professional orchardists cannot afford the time for this work, but the amateur who is gardening for much pleasure and little profit can indulge in experimenting with novelties of this kind.

The best way to graft scions into the tops of fruit trees is by means of what is called the "cleft graft." If the tree is large, it is advisable to top-work each year only a portion of the limbs so as not to be too severe. Cut the branches off squarely at a point where the diameter is about one inch, and make the cut clean, with no ragged edges. Split these in the centre and insert the scions, usually two, one on either side, so that the cambium, or green layer just below the bark, comes in contact with the cambium of the limb being grafted. The limb, or tree, being grafted is called the stock. The scion is a portion or twig of the variety that is being inserted upon this stock. Coat the wounds with grafting wax or waxed bandages so as to exclude the air and the spores of disease and to allow of rapid healing.

Do not forget to prune your fruit trees, bushes and grape vines before too late. Apple trees should be well thinned out so that the sun can gain access to the centre. Do not allow any limbs to rub or cross. Pear and plum trees should be shortened in at least about one-third of last season's growth. Cherry trees require very little pruning when once well established. Peach trees should be well pruned and headed back.

Grape vines require systematic pruning each year. The method to follow will depend upon the system of pruning given the vine during the first two or three years of its growth. One of the main points to observe is to keep the bearing wood as near the trunk as possible. Thin out well, leaving only about six or eight limbs to a vine, well placed, each limb with no more than six or seven buds.

Most varieties of currants and gooseberries produce fruit on wood that is at least two years old. For this reason, it is advisable to practise a renewal system of pruning. Each year remove two or three of the oldest branches and allow a similar number of new ones to take their places. If these bushes have not been pruned, do so as soon as possible, as they burst into leaf very early in spring.

PRUNING SHRUBS

Most ornamental shrubs require very little pruning. If overgrown, they may be thinned out. If growing unshapely the growth should be corrected. The time to prune shrubs depends largely upon the season of blooming. Early flowering shrubs should be pruned only after they have bloomed, as they produce their flowers on twigs that were formed the previous season. Should they be pruned now these twigs would be removed and, as a result, few flowers would appear. Prune when dormant late flowering shrubs such as cornus, mock orange, some spiræas and honeysuckle, *Clematis Jackmanni* and so forth. *Hydrangea paniculata grandiflora* should be pruned in early spring to about six inches of the old wood.

IN THE VEGETABLE GARDEN

The material for a hotbed should be in course of preparation. If the manure is fresh from the stable throw it in a heap for a week or 10 days. Turn it over once during that time. A hotbed, even if small, is useful in the home garden. On another page is published directions for making and operating. The information given may be applied, with modifications, to the work of making a hotbed at home.

Do you want some early, home-grown rhubarb? If so, place a barrel or box, from which the top and bottom have been removed, over a clump of the earliest kind of rhubarb that you have in the garden. Cover the top of the barrel or box at night, and during cold days. This will give you rhubarb a week or more earlier than unprotected roots will. Force asparagus similarly.

THE OUTDOOR FLOWER GARDEN

The trying time for plant life out of doors is spring. If you did not give your border plants a mulching last fall, there is still time to afford them some protection against the disastrous effects of alternate thawing and freezing. A few fine boughs or tree trimmings with a sprinkling of straw or long, strawy manure amongst them, will make an ideal spring protection. A heavy, close covering is neither desirable nor necessary. The covering should be over the plants before the snow has thawed away from them.

Bulbs should not be uncovered until danger of severe frosts is over. Remove the cover by degrees, as sudden exposure to light and air, and perhaps light frosts will likely injure the flowering heads.

Insect Pests in the Home Greenhouse

E. F. Collins, Toronto

GREEN and black aphids are the first insects that appear in the amateur's greenhouse. They make great headway unless checked in their infancy. A few tobacco stems laid on the benches or, better still, on the hot-water pipes if you have them, will keep

A Prize-Winning Rex Begonia
Grown in greenhouses of Sir H. M. Pellatt, Toronto.

these pests in check. Replace the stems with fresh ones about every three weeks.

A first-class insecticide is Nicoteen. It may seem expensive at first, but it is the cheapest in the end. It can be used for syringing or spraying almost everything in the greenhouse without the danger of spoiling the plants. If diluted to about the color of tea, a teaspoonful in a gallon of water will be strong enough.

The red spider often becomes a pest during the winter months, if the house should become very dry during the night while hard firing. It can be killed with the Nicoteen; or, in the case of foliage plants becoming infested, by constant spraying with cold water, especially on the under side of the leaves.

White and black thrips also can be got rid of by spraying with Nicoteen. When these pests appear on plants in flower, the Nicoteen can be sprayed on the hot pipes after the house is closed for the night.

The well-known mealy bug must be watched for, and when seen picked or sponged off by hand. Any spraying mixture strong enough to kill it, will also destroy any plant. Constant watching and killing on their first appearance is the only remedy.

The last few years a little pest in the form of a white fly, a moth-shaped insect, has become a nuisance in many greenhouses where a mixed lot of plants are grown. No amount of spraying or fumigating will kill it. The writer has had some experience with it and finds that the only remedy to keep it in check is hydro-cyanic acid gas. Its use can only be learned by actual experience. Begin with a small quantity and note the effect, increasing each time until you find the flies dead, and the plants not injured. It is not so much the strength used as the length of time you allow the gas to remain in the greenhouse that does the harm. I have found that a fairly strong dose in the house ten minutes is more effective than a weaker one in all night. The following directions will serve for a small house, say, 12 feet long, eight feet wide and about seven feet high at the ridge, either a span or lean-to roof:

Close the house tight all but the door. Place an earthenware jar or basin in the centre of the floor, with a pint of water in it. Pour in the jar a quarter of a pint of sulphuric acid. Next, place one ounce of cyanide of potassium in a piece of tissue paper, and, when all is ready, drop it into the acid. Get out quickly and lock the house. Stuff paper around the crevices of the door. Let the gas remain about 15 minutes, then open the door. Allow it to remain open for about half an hour before you go in. By that time all danger will be over. Hydro-cyanic acid gas is poisonous and must be handled with care. These directions can be followed without danger to person and with effect in controlling the insect.

The Amateur's Greenhouse

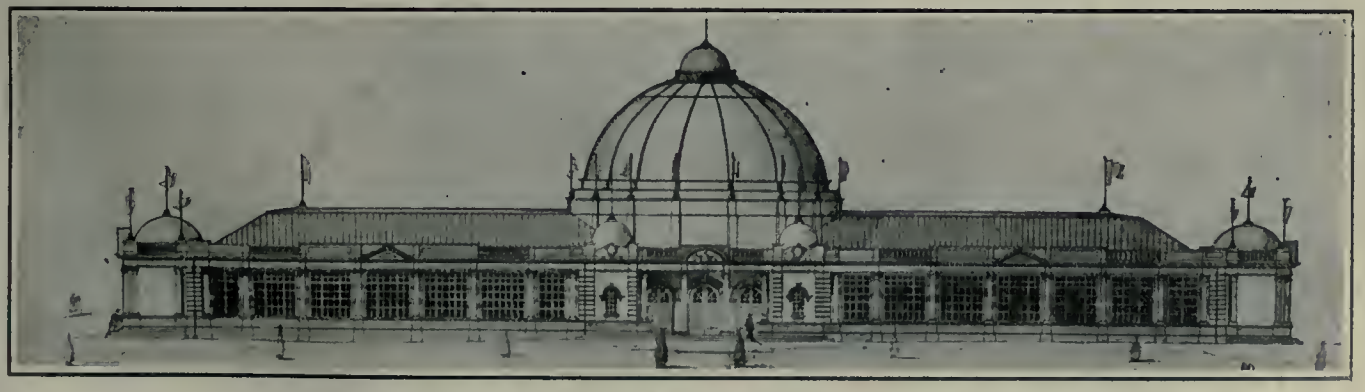
If Easter lilies are pot-bound and in healthy condition, let them have 60 degrees of heat. This may be increased five degrees or so as the time goes by. They will stand considerable forcing now. Be careful to fumigate and water carefully.

Begonia Velvetina
Grown by Mr. A. Alexander, Hamilton, Ont., and was in bloom three months.

Geraniums should be pinched at the joint next to the one that produces a flower. Pinching at the same joint seldom results in good growth.

Putting plants into too large pots is a mistake often made by flower lovers when potting or re-potting plants in winter time. Re-pot plants at this season only when absolutely necessary. The spring is the best time. If potted now, use about an inch in depth of broken flower pots or cinders in the bottom of the pot for drainage. Good drainage often obviates and prevents damage from over-watering plants in winter.

A few gloxinia tubers should be started for midsummer blooming. Place them in a mixture of leaf mould and sand, and just a little well-rotted manure. Gloxinias like a rather warm temperature when growing, and a temperature of 60



Drawing of Proposed New Horticultural Building or Canadian National Exhibition
A cut illustrating the ground-floor plan of this building probably will be published in the next issue of THE CANADIAN HORTICULTURIST.

degrees at night. Be careful not to have the leaves wet over night.

Varieties of Rex begonias may be propagated from mature leaves; or the thick, fleshy stems, or rhizomes, can be cut into lengths of about two inches and struck in sand.

Sow a packet of *Primula obconica grandiflora* seed, and grow the plants in the house all summer. They are easy to grow and one of the best of the primula family.

Centaurea gymnocarpa will be found a useful plant for window boxes, lawn vases and in beds when a plant of light foliage is desirable to bring out contrasts. Seeds of these should be started now. Double petunia, verbena, lobelia, and other seeds that are slow in germinating may be sown. A few seeds of *Cobea scandens*, a quick-growing climber, also should be started. Much time is saved and the plants cover a trellis more rapidly if they are of good size when planted.

Pruning Privet Hedges

Privet hedges sometimes become bare at the base. To remedy them, it is well to cut down the plants to within a foot or so of the ground. Many old hedges have been renewed in this manner. There is no use in trying to make them bushy in any other way. Cut the bushes down, and at the end of the next growing season there will be the foundation of a handsome hedge. This spring, when the new growth has made the length of a foot, clip off the tops at their points. This will cause side shoots to form and make a bushy base. About midsummer or a little later, another clipping of shoots should take place. If the old hedge was strong when cut down there should be, by fall, a fine bushy growth of leaf-clad shoots of two feet or more in height. Treated in like manner the following year, the close of that season will see a hedge four feet high.

In situations where the hedge is hiding some unsightly object that renders its cutting undesirable, there is nothing to do but set some young plants where the bare places are. Give them good soil to start on.

To increase your stock of privet, use the cut-down branches of the hedge for the purpose, taking preferably the growth of the last season. If these shoots are cut into foot lengths and set out in early spring, every one should root. It is better, however, to take such shoots now and after making proper lengths, to place them in sand in a cellar until time for planting.

Liberal feeding is the best antidote for weeds. Abundant moisture and plant food furnish conditions for luxuriant growth of grass, which will crowd out almost all kinds of weeds.

Sweet Pea Culture

James W. Nairn, Truro, Nova Scotia

SWEET peas have attained wonderful popularity during the past 15 years owing to the great improvement in size and form of flower, and wide range of coloring. The greatest factor in advancing the sweet pea to its present great popularity, has been the wonderful work of that famous Englishman, Henry Eckford, who, by selection and cross-breeding, so greatly improved this lovely flower. While others are doing good work on the sweet pea, it was he alone who blazed the way for others to follow.

Countess Seedling Sweet Pea

To secure the best results in growing this lovely flower, it will be found desirable to prepare the ground the previous autumn by digging the manure deep into the soil before the ground freezes; then, as soon as the ground thaws out in the spring and becomes dry enough to work, open a drill with a sharp hoe, and sow the carefully selected seeds one and a half inches deep, and at *least* three inches apart in the row if you wish to have strong, good blooming plants. As soon as the young plants are well above the surface, say two inches high, cultivation should begin and should be continued regularly throughout the season. Frequent loosening of the soil, and the application of a little manure water to the roots, will ensure a good season's bloom. It will be found of great advantage to spray the vines thoroughly with water from a fine nozzle early in the mornings of bright, hot days.

Sweet peas succeed best in cool, moist, well-drained soil, and we must not lose sight of the fact that they will not do well planted in the same soil two years in succession. The rows should be so situated that they will receive full sunlight, and an abundance of fresh air at all times. No faded blooms or seed pods should be tolerated on the vines and if we wish to have our bouquets of this lovely flower look and keep well, we cut the blooms early in the morning

The finest white sweet pea I have grown is "Dorothy Eckford," and the best pink is from the seeds of that wonderful orchid-flowered "Countess Spencer." Both of these varieties produce numberless giant blossoms on stems 18 inches long. The names of beautiful sweet peas are legion, and it is useless to give a list.

Wash the sides of flower pots once a month or oftener and they will look like new.

In Victoria and elsewhere in British Columbia English Ivy grows in all its glory, covering walls, stumps, trees, houses and so on. It came into bloom on my grounds about the middle of December last. English and Portuguese laurel and sweet bay all thrive in this climate. Camelias are used as decorative plants on our lawns.—M. J. Henry, Vancouver.

A Garden of Old-Fashioned Perennial Flowers*

J. Raymond Ball, Knowlton, Quebec

A CLASS of plants that is familiarly known as old-fashioned, hardy garden flowers is herbaceous perennials—plants that once established, continue to grow and thrive year after year with but little care and attention. Perennials are the pioneers of the floral kingdom; for who is there that does not remember seeing in the front yard or garden of his mother or grandmother some stately subject, such as an old-fashioned peony or hollyhock, planted and cared for by hands long since laid to rest? Is it not true that there are to-day in the rural districts of our country many cheerless abodes that could be made cheerful and attractive by the judicious planting of these good, old-fashioned perennial flowers? Then let us plant liberally of these old friends of our forbears, which are fast becoming favorites with most flower-loving people; plant them not only for our own pleasure but for the good of the community in which we live, so that others seeing our example may go and do likewise. As the poet says:

Make thy garden as fair as thou canst,
Thou workest never alone;
Perchance he whose garden is next to thine
May see it and mend his own.

The proper place for a perennial border or a place where it shows to the best advantage, is at the edge of a lawn, with a background of shrubbery. A border alongside a fence, a wall, or around a garden, also shows to good advantage, though if planted at the side or sides of a garden, posts should be driven into the ground and a trellis of wire should be erected behind the border, where the different varieties of vines could be grown as a background. A good deal depends upon the soil and the preparation of the same as to the results obtained in this class of plants, from the fact that they are to remain in place indefinitely. The soil should be a good general garden soil; one that will grow a good crop of vegetables will give good results. In its preparation it should be worked to a good depth, say 18 inches or more, and then a liberal quantity of good rotten manure should be mixed into the soil with fork or rake.

The proper time for planting in this climate, and for most all species, is spring, from the fact that the plants then have a year's growth, and consequently are better prepared to withstand the rigors of our Canadian winters than those that are planted in fall. Even then most kinds are benefited by a mulch of leaves or light strawy manure, to be raked off as soon as spring opens. Good cultivation of the soil, and an annual dressing of manure and bone meal, with a thinning out and a dividing of some sorts, is about all the after treatment they require.

Most perennial flowers can be easily grown from seed. If sown early, say in February or March, many kinds will bloom the first year; but it is in the second or third years that the best results may be looked for. Another method of increasing stock is by division of old plants, which operation can be successfully performed either in the fall or early spring. Many varieties can also be propagated by cuttings.

Perennial Larkspur
Grown in Border at O.A.C., Guelph

The following list of varieties includes some of the best. It is by no means a lengthy list, as there are thousands of species and varieties, and there may be others as desirable or more so. There is the achillea; the Pearl is perhaps the best known and most desirable, as its double white flowers are borne in great profusion all summer, and are valuable for cutting. Then there are aquilegias, or columbines, of which there are several varieties, all good. In anemones, Japonica, of which Queen Charlotte and Prince Henry are perhaps the best. Coreopsis, one of the most popular, with flowers of a rich golden yellow, is good for cutting; it commences to bloom about the end of June, and continues to blossom, more or less, the entire summer and autumn.

Delphiniums, or larkspurs, are amongst the most showy and stately of all perennials, and range in color through all the shades of blue. There are also white and yellow. They are easily grown from seed. The "gold medal" hybrids are undoubtedly the finest mixture ever offered. I grew them last year, and obtained some beautiful colors. They are all good bloomers. *Dielytra spectabilis*, bleeding heart, is another old-fashioned flower well worthy of a place in the perennial border.

In gaillardias, grandiflora is one of the hardiest, most showy and prolific bloomers. It keeps in flower from June until cut down by frost. Of gypsophilas, or "baby's breath" as it is commonly called, paniculata is the one most commonly grown. It is the most useful. In combination with high-colored flowers, most beautiful effects can be produced. It blooms in August and September.

The helianthus, or hardy sunflowers, are most effective, hardy plants, and look well not only in the border, but they can be placed among shrubbery, or as clumps on the lawn. Among the best varieties are Soliel d'or, Meteor and Multiflorus maximus. *Dianthus barbatus*, Sweet William, is a fine old favorite that needs no description.

Besides the foregoing, there are peonies, some magnificent varieties of which were unknown a few years ago; and various species of iris, all of which are pretty and useful. The rudbeckia, or golden glow, is not only useful but indispensable in bouquet work. Last, but not least, I will mention the hardy phlox; varieties have been wonderfully improved in the past few years, and are among the most showy and important of all hardy perennials. They are in bloom in all imaginable shades and colors from early summer until late in fall.

*A paper read at the last meeting of the Quebec Pomological Society.

Plants for Shady Places

Will you please give a list of plants that will do well in a shady bed? I have a place that is too shady for most annuals, but looks rather bare when unplanted?—P. W., Hamilton.

Among the plants suited for shady beds are pansies, lobelia, coleus, ferns, caladiums, nemophilas, forget-me-nots, sweet alyssum, fuchsias, morning-glorys, hardy phlox and lily of the valley. If the shade is dense, few of these will do well, except ferns and lily of the valley.

It is important, in establishing a lawn, to choose soil originally deep, fertile and in good physical condition.

Making and Operating a Hotbed*

F. F. Reeves, Humber Bay, Ontario

IN making hotbeds for forcing early vegetables or raising seedlings, great care should be taken in handling the manure. Good strawy manure with not too large a proportion of droppings is best. Before the bed is made up, the manure should be turned two or three times, at short intervals, as the weather will permit. The reason for the turning is to take the rank heat out, and prevent it fire-fanging. Care should be taken that every portion is well shaken. If leaves can be added it will tend to steady the heat and make it more lasting.

The manure should be left in pile long enough to sweeten. This can readily be ascertained by pulling a handful from the middle of the pile and smelling it; all impure smell should be gone.

The ideal location for hotbeds is facing south or south-east, exposed to the full sun. The boards to be used in making a frame should be 12-inch for the back and 10-inch for the front; this on level land will give sufficient fall to enable the rain to run off. Build on sandy ground with a slight slope. There are two reasons for this, the first is drainage and the second is to enable the sash to have fall enough to run off rain; this can then be secured without having the manure thicker at one end than the other. Enough manure should be used to have the bed about one foot deep when thoroughly tramped. By thorough tramping you prevent the soil from sinking in spots, which would be a source of trouble. The beds should be well sheltered by a fence or wind-break on north and west sides. The more it is sheltered sideways the better, as starving winds operate too suddenly in lowering the temperature.

The soil for the beds should have been well covered with manure. This will mean a great saving in labor and time. For lettuce, radish or beet, about six inches of soil should be used. Care should be taken to let the steam get off before planting, to prevent mildew. When lettuce is to be planted, plants that have been pricked out in flats give the best and quickest results.

My experience in radish leads me to think that the following is the best way to sow them: Make a marker the length of the sash with points three inches apart on it. With this make shallow holes and sow three or four seeds in a hole. When sown this way, practically all the radishes are ready to pull at one time. To do this successfully the seed should be sorted by sifting or otherwise, using none but plump, bright seed.

The matter of ventilation needs careful attention. If possible, the air should be changed at least once every 24 hours.

The question of watering will, of course, depend largely on the weather, making sure when watering has to be done to give a good soaking. I have frequently grown the first crop of lettuce without being watered from the time of planting till ready for the market.

Sufficient covering should be kept handy for use in case of frost. Where canvas is used, it is a good plan to go over it on a frosty night with the watering can and give it a light sprinkle; this will prevent frost getting through.

The following has been found a good way to hasten the germination of tomato, egg plant, peppers, cabbage seed, and so forth: Mix with about three times their bulk of clean sand, soak in tepid water one hour, then place in shallow boxes, keeping the different varieties labelled. Keep in a warm place until they show signs of germination, then sow in bed. Seed thus treated will usually show a green line in 30 to 48 hours after sowing.

Lettuce and radish are generally the first crops grown in hotbeds. These can be taken off and the ground used for the transplanting of tomatoes and so forth. Crops that may be started in hotbeds are beets, cabbages, cauliflowers, celery, cucumbers, egg-plants, peppers, onions, tomatoes, melons and squash.

*An address delivered before the Hamilton branch of the Ont. Vegetable Growers' Association.

Prize-Taker Onions that were Prize-Winners

This cut illustrates some of the Prize-taker Onions at the Canadian National Exhibition last fall. In the centre is the lot that won first prize. They were grown by Brown Bros., of Humber Bay, Ont. Regarding their system of producing onions of this kind, Mr. J. G. Brown writes as follows: "The most successful way to grow onions is to sow the seed in the greenhouse or hotbed about the middle of March. Then plant outside as soon as possible, in good rich soil in rows about 18 inches apart. Keep the ground well worked during growth. When the tops drop over the onion is ready to pull, but do not allow them to lie on the ground too long, as it spoils their appearance."

Tomato Culture Inside and Out*

John N. Watts, Portsmouth, Ontario

SUCCESSFUL tomato culture under glass depends as much on the man in charge as on conditions. Eternal vigilance and the exercise of good judgment on the part of the grower are more essential than strict adherence to set rules.

Strong bottom heat, plenty of light and a large volume of pure air are important conditions. They are best secured in a large, well-ventilated house. Tomatoes often are successfully grown without bottom heat, but the period of maturity is much delayed.

To make the best use of the house two crops should be grown during the season. This will bring each crop on at a season when the expense of heating during a part of the time, will be light. Plants for the first crop should be started as early as August, that is if the bulk of the crop is desired for the holidays. For the second crop seed should be sown about November 1. The plants will then be ready to replace the first lot when the fruit is off in January.

Many growers have been well pleased with the practice of laying down the vines and allowing them to take root after the first crop is picked and thereby forming a succession of fruits on the old plants. The plants are treated in every

* This essay won first prize for best article on "Tomato Growing" in the competition conducted by The Ontario Vegetable Growers' Association.

way as for outdoor culture till handled the last time.

GROWING TOMATOES OUTSIDE

Among the many varieties of tomatoes that are grown in the field, it is difficult to say which is the best marketable variety. Much time has been spent experimenting for the discovery of some early variety. I find that no variety gives more satisfactory results in this district, for earliness and yield, than the Earliana. The best late varieties for home use and market are Plentiful, which gives general satisfaction but not as early as some others, Success, Perfection, Purple Dwarf, Favorite, and a number of others.

The preparation of land for tomatoes is much the same as preparing for many other crops. Many people claim that tomatoes do not need high cultivation. To my mind tomatoes require one of the highest grades of cultivation of any vegetable that is grown for market purposes. The soil must be well fertilized with rotted manure, which should be put on in the fall. Avoid stiff, hard, clay land, as it has a tendency to spoil the crop in a wet season. Soft loam, or sandy loam, well enriched, or black land, gives the best results.

My reason for advocating the use of well-enriched soil for tomatoes is that the majority of the crop is forced into a marketable size while the moisture is in the land. Should dry weather set in before the crop has had a chance to develop, the fruit and crop will be small. Often a first-class strain of tomatoes is condemned more for want of proper cultivation than the qualifications of variety.

Sow the seed about the end of March or the first week in April. When the plants are three and four inches high, transplant into quart strawberry boxes. These are placed in a hot bed with a nice, steady growing temperature, with about three inches of soil in the bed. When the plants are all in, cover the boxes so as to prevent drying out by the sun. They are left there until the danger of frost is over.

When planting in the field run a deep furrow with the plow, in which set the plants four feet apart each way, allowing room for sun and cultivation. Break the corners of the boxes as they are put in the furrows and thus prevent the disturbing of the roots. Draw the soil around the plants with a trowel to keep them in position until all are planted. Then use the horse and cultivator and complete the work. The crop will be ready for summer cultivation in a few days.

By planting in squares it gives one a chance to work both ways with the cultivator. It thus lessens labor, reduces expenses and increases the profit. For harvesting, the bushel crate is the most satisfactory package.

Vegetables in New Ontario

AN interesting letter was received by THE CANADIAN HORTICULTURIST from Benjamin Hammond, of Fishkill-on-Hudson, N.Y., a gentleman who has travelled in Canada several times and is interested in horticulture in all its branches. Mr. Hammond is secretary of the American Rose Society. The following is his communication:

"Wabigoon is in the wild country of western New Ontario. It is a station on the C.P.R., 204 miles west of Port Arthur, and is located at the head of Lake Wabigoon. At this station last October, I saw a cabbage and cauliflower patch, that for perfect specimens attracted much attention. Since boyhood, I have always been fond of cauliflower, but for real flavor, it has not been my privilege to eat as good vegetables as the ones that I ate there. In that rigorous, wintry climate, on sandy clay soil, they are doing wonders in garden products.

"In the spring of 1905, before the ice was broken, I left Wabigoon in a primitive sled to go through the bush and over the lakes a distance of 30 miles. About a mile on the journey, I came to a clearing where two log buildings were built; one a barn and the other a settler's cabin. An acre or two of the light timber around the buildings was down. It was being gathered by a boy with a cow and a sled; the settler had no horse. This industrious man, Herbert Wright by name, had taken up the land and settled with his young family to clear up and make a homestead. They were intelligent workers. Last fall at the agricultural exhibition of the Rainy River district, held at Fort William, Mr. Wright placed his products on exhibition. He was successful in securing first prize for parsnips, early Egyptian beets, early round cabbage, white celery, intermediate stump carrots, early red onions, globe Danvers and winter set onions; second prize for early pointed cabbage, and third prize for potatoes, 'Carman, No. 1.' How is this for new land in the so-called wilderness west of Lake Superior? Two years ago I saw a celery patch that exceeded in strength, crispness, and flavor anything of the kind that I ever saw in New Jersey or Kalamazoo."

A New Ontario Home and Garden

Potash for Potatoes

For growing potatoes, which gives the best results, muriate of potash or sulphate?—T. H. P., Appleby, Ont.

I do not know as there is any great difference in the effect of the two different fertilizers upon the growth of the crop, but the muriate of potash does not give as nice a potato as the sulphate. The former substance is inclined to make the potato waxy and the flavor is not so satisfactory as where the sulphate is used.—Answered by Prof. R. Harcourt, O.A.C., Guelph.

The first blossom on the tomato plant usually is double, and always should be picked off.—J. Gibbard, Doncaster.

Hard or Soft Wood Ashes

Which is the best, hard wood ashes or soft wood?—W. B., Ayr, Ont.

The ashes of hard and soft wood are very much alike, except that the former are heavier. Soft wood ashes are bulky. A great deal depends upon the position of the wood in the tree. The limbs and branches contain more ash and consequently more potash than that from the trunk of the tree, and the limbs more than the twigs. As you pass upward and outward you find more potash than you do in the trunk of the tree.

Manure for hotbeds should be uniform in composition and texture.

Vegetable Varieties That Pay

THE following varieties are recommended by Mr. W. G. Horne for the district about Clarkson, Ont.: "Potatoes are grown extensively and for the last four years have been a paying crop. We introduced about four years ago an early variety called Early Envoy, which has proved to be very early and productive. It grows to a good size, is oblong and pink in color. For an early potato it is very smooth, with small eyes, and splendid for cooking. Some of our growers tried the Delaware potato, "which is so much sought after in Toronto," for a late kind, with good results. American Wonder is still a favorite with a great many. In cucumbers for the early market for slicing, I find the Improved Arlington, White Spine and the Evergreen White Spine the best. Have also tried several varieties of tomatoes and find Spark's Earliana Tomato, No. 10, the best. The best early muskmelon known in Canada to-day is the Unsworth. Landreth's Extra Early Citron Muskmelon is fully as early but not quite so showy a melon. These two varieties of melon need to be started in a hotbed to be profitable for market. For late varieties, the Rocky Ford and Paul Rose cannot be excelled."

TORONTO DISTRICT

For the district around Toronto, Mr. J. W. Rush, of Humber Bay, Ont., submits the following: "The time of the year has come again when we must think about what crops will be best for us to grow and where we shall get our seeds. After nearly 40 years' experience, I find it better to buy seed from our local seedsmen, and always to get well-known varieties. Let new varieties and novelties alone. Leave them for the college students to try; we have no time for such work. Always buy the best seed and get it in time to test its germinating power.

"Radish seed to be sown in hotbeds or greenhouses should be large and plump, and sown rather thin, an inch apart each way; in hotbeds, not more than six inches from the glass; in greenhouses, as near the glass as possible. When sowing spinach in early spring, set the drill one inch deep, sow moderately thick and tramp with foot; then every seed will grow. I sow Early Round Summer and Savoy Leaf, as they do best. Beets and carrots may be sown as early as land can be got ready. Be sure and firm soil on the seed. The best varieties of beets are, for early, Crosby, Egyptian and Eclipse Turnip; for late winter, Long Blood Smooth. Two well-known varieties of carrots are Chantenay, Stump Rooted and Half Long Danvers. Cabbage can be sown the first of March in bed or greenhouse; when in rough leaf, prick out in flats about two inches each way. For early cabbage, sow Jessey Wakefield and Henderson's Early Summer. Plant out April 20 if land is ready. If they get covered with snow a few times it will do them no harm. Give cauliflower the same treatment as cabbage. Snowball and Erfurt are the best varieties; no man can tell one from the other.

"For early corn, sow Early Market; for medium, Parry's Hybrid; for late, Country Gentleman and Stovell's Evergreen. The best onions are Yellow Danvers, and Southport Yellow; red onions are not wanted in Toronto market. Some Toronto growers make big money growing the silver skinned pickling onions, as there is always a ready sale for them at $2.50 to $3.00 a bushel; if 200 bushels or more are taken from an acre, they pay well. We sow New Intermediate and Hollow Crown parsnips. Put plenty of seed in the drill if you want a good catch. Sow the Moss Curled parsley; sow some onion seed with it and pull the onions early and bunch for market."

MONTREAL AND VICINITY

For the Montreal district, Mr. Chas. A. Smith, of Lachine, recommends the following: "Beans, butter, Currie's Must Proof, one of the best, Wardwell's Kidney Wax, and Yosemite Mammoth, round, padded; green, Early Red Valentine and Refugee; kale, Dwarf Green Scotch, curled; beets, round, Egyptian Turnip; long, Improved Long Blood; half long, Bonsecours Market; Brussels sprouts, Edinburgh Prizer; cauliflower, selected Dwarf Early Erfurt; cabbage, early, Early Express, Early Etampes; midsummer, Henderson's Early Summer and Cannon Ball; late or winter, Autumn King, Flat Dutch, Marble Head, Improved Brunswick; carrots, early, Early French Horn; general purpose, Chantenay, Half Long Improved, Vannery Half Long; long, Scarlet Intermediate, Long Red Stump-rooted; celery, White Plume; yellow, Paris Golden Yellow; red, Dobbie's Selected Red.

"The best varieties of early corn are Sugar Cory, New Champion; late, Mammoth, Stowell's Evergreen; midsummer, Kindal's Giant, None-such, Crosby, Country Gentleman; cucumber, White Spine; egg plants, New York Purple, Early Round White, Luke's Musselburgh; onions, Red Wethersfield, White Globe, Red Globe, Prizetaker, Yellow Globe Danvers; parsnip, Hollow Crown, Student; peppers, Cardinal, Giant Large Red; peas, Gradus, Early Star, American Wonder, Heroine, Stratagem, Market Garden; salsify, Mammoth Sandwich Island; vegetable marrow, Long White Bush, Boston Marrow; tomatoes, Earliana, Freedom, Perfection, Dwarf Champion and Trophy."

Producing Early Beets

The best variety of beets for the early market is the flat Egyptian. The seed should be sown in the greenhouse from the last of February to March 20. It is best to plant them in rows, because when they are being transplanted they can be taken in bunches and odd ones left on the bench to get stronger. If sown broadcast, all will have to be transplanted at once. Sowing in rows also results in less trouble from the "damping-off" fungus, which becomes very common if the young plants do not receive plenty of air. Moist air aids the development of the disease.

A liberal watering should be given when the seeds are sown, and then no more for some time. No damage will result if the plants are allowed to wilt down before more water is given. It is difficult to grow beets successfully in hotbeds; but they can be handled if all the steam is allowed to escape from the bed before the seed is planted.

Once the plants are "pricked out" the trouble in handling them is over. They should be set out as early in the spring as the ground can be worked. In preparing the soil, it should be made as rich as possible with manure and then top-dressed with some high-grade fertilizer. This should be followed with thorough harrowing, and then be smoothed off with a plank drag. Best results are obtained from setting the plants three to four inches apart in rows 14 or 15 inches apart. Cultivation then has to be done with a wheel hoe by hand. Too much cultivation cannot be given.

The earlier a hotbed is made the larger should be the quantity of manure used.

Value of Carbonate of Lime

Is carbonate of lime a good fertilizer for market garden soils, particularly for the growing of table roots?—L. M. A., Waverley, N.S.

Carbonate of lime may be looked upon as an indirect fertilizer. Its chief functions in the soil seem to be to improve the physical condition, to neutralize acidity, and to liberate plant food, particularly potash, in the soil. If the soil has been under cultivation for some time and is rich in organic matter, it is quite possible that a dressing of one to one and a half tons an acre of fresh burnt lime would be beneficial to the soil. If the soil is a clay, it is probable that lime will improve the physical conditions and will liberate potash and thus aid in the growth of whatever crops may be grown upon it. Roots of all kinds require large amounts of potash. Lime will liberate this constituent from insoluble forms of combination, and to that extent will aid in the growth of roots.—Answered by Prof. R. Harcourt, O.A.C., Guelph.

OUR QUESTION AND ANSWER DEPARTMENT

Readers of The Horticulturist are invited to submit Questions on any phase of Horticultural work

Grafting Wax

I desire to top-graft some apple trees. What are the ingredients and directions for making a good grafting wax?—M. T. S., Falmouth, N.S.

The following formula has been used for many years with satisfaction, as it does not melt and run down the tree by the heat of summer or crack by the cold in winter: Resin, four parts; beeswax, two parts, and tallow, one part. Melt the ingredients in an iron vessel over a slow fire, mixing thoroughly and taking care not to burn. When well incorporated, in half an hour or so, pour convenient portions from time to time in cold water, and when sufficiently cooled in a minute or less, take out and pull like taffy until it becomes light colored, when it may be made into rolls three or four inches long and an inch in diameter, for convenience in use. A little tallow, as little as possible, will be necessary on the hands to prevent sticking. As the sticks are made they should be placed in another vessel containing cold water to harden, after which they should be put away in a cool place until they are wanted for use.

Thomas Slag for Peaches

When commercial fertilizers are used on orchard soils, is it necessary to plow them down? How much Thomas slag per acre should be used for peach trees growing on light, sandy soils? —J. S., Beamsville, Ont.

I do not think that it is good practice ever to plow down commercial fertilizers. They should be sown on the surface and then harrowed or worked into the surface soil. They will find their way down quickly enough. For peach trees growing on light sandy soil, Thomas phosphate may be used at the rate of 300 to 400 pounds an acre, and on such soil it might be well to use some potash fertilizer in addition to the Thomas slag.—Answered by Prof. R. Harcourt, O.A.C., Guelph.

Pruning Small Fruits

When should I prune grapes and small fruits?—J.P., Toronto.

Grapes and small fruits may be pruned in spring before growth starts. March is a good month for the work.

Nitrate of Soda for Lawns

Will nitrate of soda improve a lawn that is bare in spots and moss-grown in others? When should it be applied, and how much per square rod?—B. McN., St. Stephen, N.B.

It is hard to give a definite answer from the conditions given, but I fear that, if the lawn were moss-grown in spots, the soil is somewhat sour or acid, and, therefore, I would recommend the application of some manure, which would neutralize the acid. This the nitrate of soda will not do. It is quite probable that the use of some Thomas phosphate, which contains a considerable quantity of lime besides phosphoric acid, would correct the sourness. This might be all that the soil needs. If from known conditions it is considered that the ground is fairly rich, it may be that the addition of lime would correct the acidity and would be sufficient. If it would not, I would be inclined to apply Thomas phosphate, some nitrate of soda, and some form of potash fertilizer. The different constituents may be applied in the early spring. If nitrate of soda is used, this should be applied in the growing season, and then in very small quantities or it will burn the leaf.—Answered by Prof. R. Harcourt, O.A.C., Guelph.

Treating Primroses

What shall I do with my primroses after blooming during the winter?—Mrs. A. J., Knowlton, Que.

The uncertainty of next season's blooming, and the care required during the summer make it unprofitable to carry the plants over. Start new plants from seed or purchase new ones from your florist at the proper season.

Plants for Water Garden

Will you name the best plants to make a small water garden, six by nine feet, and the number that would be likely to grow in such a small space?—M.M., Toronto.

Plant two tubers of *Nelumbium speciosum* at one end in a space separated from rest of pond by a 10 or 12 inch board on edge. If hardy lilies are planted probably one of the stronger growing varieties would fill the rest of the pond—*Nymphœa marliacea rosea* (pink), *N. m. chromatella* (yellow), or *N. m. albida* (white) are vigorous growers, free and continuous bloomers. Two less vigorous but otherwise as good varieties might be tried, say *Nymphœa tuberosa rosea* (pink), and *N. t. maxima* (white). If tender lilies are planted, one of either of the following would do, viz., *Nymphœa Devoniensis* (pink, night blooming), *N. dentala* (white, night blooming), or *N. Zanzibarensis* (blue, day blooming). Two or three plants of Umbrella Grass, *Cyperus alternifolius*, or *Papyrus antiquorum* in pots might be stood in the pond, not submerged. The little Water Poppy, *Limnocharis Humboldti*, is pretty and takes up very little space.—Answered by A. H. Ewing, Woodstock, Ont.

Mildew on Plants

What causes mildew on plants, and what is the remedy?—W. M. C., Newcastle, N.B.

Mildew is a fungus that develops rapidly in damp weather. Flowers of sulphur dusted on the leaves when they are damp will prove an effective remedy.

Diseased Lettuce

Am bothered with rust on lettuce in greenhouses. Free from disease last winter, but had considerable the winter before. The seedlings were fine and healthy this season, so cannot account for rust. Kindly state the cause of, and remedy for this disease.—A. B., Stamford, Ont.

We are not certain what the disease referred to is, as there are several diseases that affect lettuce, none of which is known by the name of "Rust." Names of these diseases are the Grey Mould, Sclerotium disease, the Drop or Rot disease and Downy Mildew. As it is difficult or practically impossible to treat these diseases by spraying, some other means must be found. The plan usually adopted is to sterilize the soil. If it is not found practicable to sterilize all the soil, it is wise to treat as much of it as possible, even an inch on the surface very often will check the spread of the disease to a large extent. The use of fresh manure should be avoided and old soil should not be used unless sterilized. The lettuce house should be kept as well ventilated as possible.—Answered by W. T. Macoun, Dominion Horticulturist, C.E.F., Ottawa.

Grow or Buy—Which?

Should the gardener grow or buy his vegetable seeds?—D. B., Renfrew, Ont.

The latter is much the wiser and safer plan. It is better to purchase seeds from those who make a specialty of growing them. Such men can afford the time, labor and expense required to secure seeds of the best pedigree or strain. The ordinary grower's method of seed selection at home is to save the seed only from plants remaining in the garden after the best specimens have been gathered for market; while the best seed is that which has been gathered from the best plants of the best strain. Occasionally the gardener may raise his own seeds with advantage, as in the case of one who is making a specialty of growing a particular class or variety of vegetable.

The Canadian Horticulturist

Published by The Horticultural Publishing Company, Limited

The Only Horticultural Magazine in the Dominion

Official Organ of British Columbia, Ontario, Quebec and Prince Edward Island Fruit Growers' Associations and of the Ontario Vegetable Growers' Association

H. Bronson Cowan, Managing Editor
A. B. Cuttino, B.S.A., Horticultural Editor
W. G. Rook, Advertising Manager
Garrett Wall, Circulation Manager

GREAT BRITAIN

Frank Fletcher, 135 Henrietta Street, Old Trafford Manchester, Eng., Advertising and Circulation Manager

1. The Canadian Horticulturist is published on the 25th day of the month preceding date of issue.

2. Subscription Price 50 cents a year, three years $1.20, strictly in advance. For all countries except Canada, United States and Great Britain add 50c. for postage for each one year subscription.

3. Remittances should be made by Post Office or Money Express Order, or Registered Letter. Postage Stamps accepted for amounts less than $1.00.

4. Discontinuances—Responsible subscribers will continue to receive The Horticulturist until the publishers are notified by letter to discontinue, when all arrearages must be paid.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising Rates quoted on application. Circulation 6,000. Copy received up to the 18th. Responsible representatives wanted in towns and cities.

7. Articles and Illustrations for publication will be thankfully received by the editor.

Our Protective Policy

We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason to believe that any of our advertisers are unreliable, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant we will expose them through the columns of the paper. Thus, we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefits of this Protective Policy is that you include in all your letters to advertisers the words "I saw your ad. in The Canadian Horticulturist." Complaints should be sent to us as soon as possible after reason for dissatisfaction has been found.

Communications should be addressed:
THE CANADIAN HORTICULTURIST,
506-7-8 Manning Chambers,
TORONTO, CANADA

BECOME ONE OF OUR PARTNERS

Few business enterprises pay as well as successful publications. It is seldom that papers or magazines that have recognized fields, fail. It is for this reason that investments in reliable papers are generally sought after and seldom prove disappointing.

As announced some months ago, the shareholders of the Horticultural Publishing Company, Limited, have decided to increase the subscribed stock of the company from $12,000 to $22,000, and the paid-up stock from $6,000 to $10,000. The $10,000 in new stock is now being offered for subscription. Already about half of it has been subscribed by the directors and shareholders of the company. It is desired that the balance shall be placed among the readers of the two papers, The Canadian Horticulturist and *The Canadian Florist*, owned by the company. In offering this stock to our readers, we do so with every confidence that, should they decide to invest, they will not regret their action and that in a few years the stock of the company will prove very valuable.

During the past four years the receipts from the advertising carried in The Canadian Horticulturist have doubled each year. During the past five months the paid subscription list of The Horticulturist has increased by over fifty per cent. By the end of this year it is expected that the number of paid subscribers will be almost, if not quite, double what it was last year. This is going to make possible, in the near future, a decided advance in our advertising rates which will result in increased receipts from advertisements without its being necessary to further enlarge the paper. As regards *The Canadian Florist*, the receipts from that paper already exceed the expenditures.

The shares of the company are $50 each, on which it is intended to make four calls this year of ten per cent. each. In other words, on each $50 share only $20 will be called. Do you not think it would be nice to be a part owner of The Canadian Horticulturist? Those of our readers who are interested in this announcement are invited to write for a prospectus giving detailed information.

A DOMINION FRUIT ASSOCIATION

Why should there not be a Dominion Fruit Growers' Association? There are six provincial fruit growers' associations, all of which meet yearly, all of which receive regular provincial grants, and all of which are accomplishing much valuable work. It seems as though the time has come when the present organizations should be crowned by the formation of an association that will be representative of the fruit growers of the Dominion.

The Dominion Conference of Fruit Growers, that was held in Ottawa last April, was productive of much good. It demonstrated that there are many matters relating to fruit growing that can be discussed to the best advantage only at a meeting representative of the fruit growers of all the provinces. Although three busy days were spent at the conference, much of the work had to be hurried through without sufficient consideration, while a number of important matters that were down on the program for discussion were not reached. This serves to show the necessity that exists for the holding of regular meetings of the same nature.

This need was expressed at the conference by a resolution that was submitted and which favored the formation of a Dominion Association. This was one of the matters that lack of time prevented being considered. The resolution in question was withdrawn when Hon. Sydney Fisher promised to arrange for the holding of another conference within two or three years. This announcement on the part of Hon. Sydney Fisher was received with such enthusiasm by the assembled delegates, that it leads us to ask Hon. Mr. Fisher why he should not carry the matter further and arrange for similar conferences at stated periods.

One objection, expressed by Hon. Mr. Fisher, to the formation of a Dominion organization, representative of the fruit interests, and which would meet regularly, was that his Department, already, is so busy he would find it impossible to give such meetings his personal attention. With all due respect to Hon. Mr. Fisher, we fail to see the strength of this reason. The provincial fruit growers' associations manage to hold very successful conventions even when they are not attended by the provincial ministers of agriculture. In fact, they sometimes hold even more successful conventions in the absence of the ministers of agriculture from some of the sessions than they otherwise would, inasmuch as the growers present feel more free to talk-out on the matters relating to government work. Later, when decisions have been reached on subjects in regard to which it is felt that the assistance of the government is needed, deputations are appointed to wait on the Minister of Agriculture and discuss them with him. Why could not this be done in the case of a Dominion organization of fruit growers? While Hon. Sydney Fisher might not be able to attend each meeting, he surely could find time to meet with deputations to consider the results of their conferences. This, in the absence of a better arrangement, would be sufficient.

The matter of expense should not be a serious difficulty. A couple of provinces give an annual grant to their local fruit growers' associations of $1,800. We understand that the last Dominion conference cost the Dominion Government about only $2,000. The Dominion Government can afford to be as liberal as the provincial governments in a matter of this kind, and, therefore, should be able to make a regular grant of $3,000, or $4,000 if necessary, to assist the holding of such conferences regularly. While it, probably, is not necessary that representative fruit growers from all the provinces should meet together each year, they should meet not less often than once every two years. At present, the calling of these conferences is left to the discretion of the Dominion Minister of Agriculture. While fruit growers generally have every confidence in Hon. Sydney Fisher, they would feel better satisfied were there an arrangement by which they would be able to meet as regularly in a Dominion conference as they now meet at their various provincial conventions

NOT YET SATISFACTORY

During the discussion in the House of Commons of the new Cold Storage Act, introduced by Hon. Sydney Fisher, it was pointed out that the basis of distribution of the proposed government grant was not satisfactory, owing to the period of payment being extended over too long an interval. The first proposal was that the Government, on the completion of a cold storage warehouse, should make a grant equal to one-tenth of the cost of construction, and that during the succeeding four years, four more payments should be made, each equal to five per cent. of the cost of construction. The Minister of Agriculture has expressed a willingness to increase the amount of the first payment to make it equal fifteen per cent. of the cost of construction and to increase the amount of the second payment to seven per cent.

This change is in the right direction, but we feel that it still does not go far enough to offer sufficient inducement to fruit growers to co-operate in the erection of warehouses for the handling of their fruit. When the Cold Storage Act was introduced in the House of Commons, it was explained that one of the chief objects in view was to prevent the enormous waste that takes place each year in the marketing of the apple crop. This object will not be accomplished unless the growers are encouraged to erect their own warehouses. This will not result, to any considerable extent, unless the first payment by the Government is equal to at least twenty per cent. of the cost of construction. We hope that the bill will be amended accordingly. In any event we desire to congratulate Hon. Sydney Fisher on having introduced this measure, which, in the end, should prove of great benefit to the fruit growers of the Dominion.

Announcement was made some time ago that the Provincial Secretary for Ontario proposed to introduce a new Companies' Act. This Act is now before the Legislature. The scope of this Act is so wide as to take in and provide for the incorporation of all kinds of companies, whether joint stock companies or cooperative. Hitherto many cheese-making and butter-making companies have been incorporated under the Act respecting cheese and butter manufacturing associations and companies; and many fruit companies have been incorporated under a similar Act, entitled, "An Act to Provide for the Incorporation of Cooperative Cold Storage Associations." Incorporation under these two Acts was very simple: Five or more persons could sign an agreement which was filed in a local registry office and the company was then allowed to carry on business with certain restricted powers. The new Act will continue the incorporation of all companies organized under these two Acts and will place these companies on a par with joint stock companies, having powers to carry on business just as joint stock companies have at the present time. These companies will hereafter be required to make

annual reports to the Provincial Secretary. The general effect, therefore, will be that their status will be improved. The only objection that might arise would be the fear that high fees would be exacted, but the Provincial Secretary's department has given the assurance that in the case of such companies the annual fee will be merely a nominal one and that there will be no cause for objection along that line. The Act will provide that in future all such companies must be organized under this new Act, so that it will no longer be possible to organize a company by simply signing an agreement and filing the same with a local registrar. The Provincial Secretary's department will provide very simple forms for incorporation and will exact minimum fees, so that encouragement will be given to the organization of companies in connection with agricultural operations. The assurance is given that nothing will be done to discourage the organization of such companies, but that everything will be made plain and simple, and be done at a minimum cost. The advantages of this Act are that all companies doing business will be on record at Government headquarters, with the powers and privileges fully set forth, and that it will be possible to find out at any time on application to the Provincial Secretary's office what companies are doing business along any lines.

A live new branch of the Ontario Vegetable Growers' Association has been formed at Ojibwa, and more are in process of formation. An extensive program of work is being prepared for the provincial association this year, and by the end of the year it is expected that the total membership will be over 700. When this association was formed, just two years ago, it was feared by some that its constitution which was radically different from those of the other provincial associations, and a good deal in the nature of an experiment, would not work out successfully when put to the test of time and practice. After a two years' trial the association is in a very satisfactory position and looking forward to a bright future. It would seem as though the Ontario Fruit Growers' Association need hesitate no longer about adopting a similar constitution. The step in that direction taken by its members at their last convention was not quite big enough. There is room for still further improvement.

In Denver, Col., an annual cleaning day is appointed every spring for the purpose of cleaning up the streets, parks, boulevards, and other public places. A new feature of the cleaning day last year was the campaign against the dandelion, which feature was introduced by the mayor of the city. Householders were urged to dig them up by the roots from their back yards, lawns and gardens, and thereby lessen the spread of this ever-present nuisance. The Ontario Horticultural societies, and all cities in Canada interested in civic improvement, would do well were they to institute a similar onslaught on the dandelion, which is a civic nuisance.

Those fruit growers in Ontario who have refused hitherto to admit the presence of the San Jose Scale in their sections and to support the local inspectors in their efforts to stamp out the pest are now regretting their short-sightedness. The time is ripe for an aggressive campaign to wipe out the pest.

We are in receipt of a handsome catalog from Brown Bros. Co., Limited, Brown's Nurseries, Ont. It contains a large number of beautiful lithographs that portray the leading varieties of specialties that are handled by this well-known firm. The illustrations are beautifully done, and the descriptions of varieties are excellent. Fruit growers and gardeners should have a copy of this catalog.

The Cold Storage Act

THE following is a copy of the Act to encourage the establishment of cold storage warehouses for the preservation of perishable food products. Readers of THE CANADIAN HORTICULTURIST are invited to discuss it through these columns:

1. This Act may be cited as *The Cold Storage Act.*

2. The Governor in Council may enter into contracts with any persons for the construction, equipment and maintenance in good and efficient working order, by themselves, their successors and assigns, of cold storage warehouses in Canada, suitable for the preservation of the food products specified in such contracts.

3. The location plans and specification of every such warehouse, its equipment, and the amount to be expended thereon, shall be subject to the approval of the Governor in Council.

4. The Governor in Council may, out of any moneys appropriated by Parliament for the purpose, grant towards the construction and equipment of any such warehouse a subsidy not exceeding in the whole 30% of the amount expended or approved of in such construction and equipment, and payable in instalments as follows: Upon the warehouse being completed and cold storage at suitable temperatures being provided therein, all to the satisfaction of the Minister of Agriculture, a sum not exceeding 15% of the amount so expended, and at the end of the first year thereafter, 7% of the said amount, at the end of the second year thereafter 4% of the said amount, and at the end of the two succeeding years 2% of the said amount, provided the warehouse is maintained and operated to the satisfaction of the Minister of Agriculture.

5. The Minister of Agriculture may refuse to pay any part of the said subsidy if, in his opinion, the operation of the warehouse has not been of such a character as to provide for the proper preservation of such products as may be stored therein.

6. The Minister of Agriculture may order, and cause to be maintained, an inspection and supervision of the sanitary conditions, maintenance and operation of such warehouses.

7. The rates and tolls to be charged for storage in such warehouses shall be subject to the approval of the Governor in Council.

8. For the effective carrying out of the provisions of this Act, the Minister of Agriculture may appoint inspectors, who shall have access to all parts of such warehouses at all times.

9. Chapter 7 of the statutes of 1897, intituled *An Act respecting Cold Storage on Steamships from Canada to the United Kingdom and in certain cities in Canada*, is repealed.

Spraying in Prince Edward Island

Rev. Father Burke, Alberton

A FEW of our most successful growers are not absolutely satisfied as to the value of spraying; some said openly at the late meeting of our Provincial Fruit Growers' Association that they did not believe in it at all. Personally, I am convinced that spraying with Bordeaux mixture for clean and sound fruit is a necessity, that its use has gone altogether beyond the experimental stage, and that, in ordinary years, it is impossible to grow good fruit of most varieties without it. If science has demonstrated anything, it has this.

In his paper last December before the association, Mr. Registrar White reflected on spraying, and Mr. John Newson, a very successful grower and specially intelligent man, was put on record as saying that the unsprayed portion of his plantation was richer in fruit returns of a superior class than the sprayed portion. He said that he had been enabled to form this opinion from the fact that, for fear of killing his bees, he had desisted, in the main, spraying operations, leaving such apples as the Wealthy, then in bloom, unsprayed. From the chair we told him that in order to prove his case he would need to convince us that the mixture was rightly made of good materials, rightly applied, and that the weather was not such after as to remove the wash from the trees. He thought all those conditions were maintained properly, and was inclined to hold his ground, although the faet that it was a question of only one spraying, predicted a want of system and adherence to instruction in the matter. Mr. Bovyer, of Georgetown, our new inspector-instructor, argued strongly in favor of spraying; so did Messrs. Moore and Dewar, both experienced growers. The concensus of the meeting was strongly on the side of sprays. Mr. White, in closing, said that Bordeaux had been blamed for leaf blight in the States and some parts of Canada.

As a matter of fact, Bordeaux mixture is now being pretty generally used on the potato crop as well as on fruit trees here. It is more generally than ever used on the latter, and fruit cannot long be grown profitably without it. We all recognize, however, the hardship spraying imposes on the ordinary individual. It is a dirty job at best for amateurs. If a public sprayer could be had to do the work reasonably in price and well as to methods, there would be few people bother with it themselves. Say what they will, half the mixtures made by tyros are imperfect—a loss of time, money and whatever old clothes are valued at. I hate to have to go at it myself, but there is no help for it until spraying is done by travelling professionals licensed by the board, as are many other much less important matters in our everyday life.

Cooperation for Fruit Growers

In the province of Ontario there are some 27 cooperative fruit associations, and the result of the operation in connection therewith during the past season have been most satisfactory to the fruit growers concerned. The prices received by the individual grower have been, in the majority of cases, much beyond that realized before cooperation was introduced. The Department of Farmers' Institutes and the Provincial Fruit Growers' Assn. are cooperating in the holding of special meetings to further the interests of cooperation. Letters have been addressed to a number of points at which it is thought cooperation could be introduced to advantage. Some likely places have, no doubt, been overlooked in this.

Fruit men are asked to make application either to P. W. Hodgetts, secretary of the Ont. Fruit Grs.' Assn , or to G. A. Putnam, Supt. of Farmers' Institutes, if a meeting is desired with a view to placing before the fruit men the possibilities and advantages of this line of work. Cooperative companies can be organized at a nominal fee, and fruit men have nothing to lose and much to gain in forming an organization.

IF YOU WANT A BOOK we will get it for you Send for our catalog, which is free to all subscribers. You may see some book listed therein which should be in your library.—Address, THE CANADIAN HORTICULTURIST, Toronto.

We Want New Subscribers and are willing to pay generously for them. Canvassers make from $2 to $10 a day canvassing subscriptions to THE CANADIAN HORTICULTURIST. Write for particulars now.

Work of Experiment Stations with Insects and Fungi

A BULLETIN, No. 150, entitled: "The Common Fungous and Insect Pests of Growing Vegetable Crops," was prepared by Prof. Wm. Lochhead and Mr. T. D. Jarvis, and issued by the O.A.C., Guelph. Growers may obtain a copy on application to the college or to the Dept. of Agri., Toronto.

In the bulletin an attempt is made to describe concisely the common fungous and insect enemies of vegetable crops, and to state briefly the best methods of controlling these pests. "It is believed that the publication of such information in bulletin form will fill a long-felt want. While criticism may, perhaps, be made of some of the treatments recommended, to the effect that they are too expensive, too burdensome, or but partially effective, it can at least be said that they are the best that up to the present have been devised. It is true that with some vegetable crops the returns are so small that every means must be taken to reduce the cost of growing and marketing the crop. As a consequence, some growers will, perhaps, prefer to replant rather than practise the treatments recommended in the bulletin."

SPRAYING FOR SAN JOSE SCALE

We are just in receipt of a bulletin, No. 107, issued by the W. Va. Exp. Sta. on the results obtained from commercial insecticides for the San Jose scale. Tests were made of various concentrated materials that are on the market. Of the spray materials used in the experiment Target Brand Scale Destroyer and Kil-o-Scale gave the best results, being practically identical. The bulletin says in part:

"Concentrated soluble oil preparations are the most convenient to use of any material yet devised for the destruction of scale insects. They mix readily with cold water and are not injurious to spray pumps, harness, horses, nor the face and hands of the user. None of them, however, seem to possess the fungicidal properties of the lime and sulphur sprays, but as scale killers some, at least, are entirely satisfactory and greatly simplify the matter of combatting scale insects on fruit trees. The ease with which these materials may be prepared for use in small orchards and fruit gardens, as well as larger plantations, offer good reason for the hope that in the future more interest will be taken in the matter of spraying by those who own scale-infested trees."

PETROLEUM EMULSIONS

In bull. No. 75, of the Agr. Exp. Sta. at Newark, Del., an attempt is made to describe methods of making petroleum emulsions without guaranty of their efficiency as insecticides. "These emulsions depend on soap for their existence, and sometimes on other auxiliary agents. Different formulas call for different proportions of emulsifier, and are, accordingly, differently adapted to summer and winter applications. Soluble oils sometimes require a preliminary 'manipulation' with a little water before they will emulsify. It is cheaper to prepare the emulsifier, or 'concentrated oil,' alone and to add the necessary amount of petroleum oils at the place where the material is to be used. High ratio 'soluble oils' are usually turbid, separate in 2 parts and need to be mixed before using. Probably a small fraction of the oil emulsified is visible when magnified. Some emulsions separate within a short time, others last for months.

"Most of the various insecticides, except Paris green, decompose soap, and therefore destroy the emulsions that they are mixed with. Hence, there is urgent need of clean vessels and utensils. Kaolin, or even good clay, may be used as a 'marker' to indicate the completeness of the spraying. Crude oil emulsions are somewhat more difficult to make than those with kerosene, but they are practicable. The cost of materials needed to emulsify a gal. of kerosene or of petrolcum oils ranges from 1½ cts. to 15 cts. 'Soluble oils' may easily be made, with but a few appliances and with but little skill."

INSECTS AND INSECTICIDES

The Agr. Exp. Sta. of Fort Collins, Col., has ssued a bulletin, No. 114, containing information in regard to the common insect pests and the remedies that are commonly used for their destruction or prevention. The 1st part deals with the most important insects attacking both large and small fruits, detailing, in particular, those that attack the different parts of the tree, bush or plant. The description, life history, habits and remedies for each are included.

The 2nd part takes up the preparation and use of the more common insecticides, giving in detail those substances that kill by being eaten by external contact, by being inhaled, and those that repel. Insect traps are also dealt with.

The best methods of applying insecticides, wet and dry, are described. Spraying is taken up as follows: "The first requisite for a good job of spraying is a pump that will give plenty of pressure in the hose. Then, if one has a good spraying nozzle and a liquid that is free from solid particles of a size to clog the sprayer, there will be no difficulty in getting a good spray. Barrels and tanks should always be filled through a strainer to avoid loss of time and annoyance through the clogging of nozzles.

"A very fine spray is most economical of material and, for an even and thorough distribution, is best, and is especially useful for the destruction of caterpillars, slugs and other insects that devour the foliage of plants. In case of the first spraying for the codling moth, however, I am still constrained to recommend, as I have done for years, that the spray be a medium coarse one. By this I do not mean that the spray should be composed largely of large drops produced by the breaking up of a solid stream thrown forcibly into the air, and it should not be a fine mist or fog. A rather coarse Vermorel, or a good Bordeaux nozzle with a pressure of 100 or 125 lbs., will furnish such a spray. When spraying is being done to destroy leaf-eating insects, care should be taken not to spray too long in one place, as this will result in the little drops that collect upon the leaves uniting and running off, carrying the poison with them. Here again this rule does not apply to the first treatment for the codling moth. In that application there should be but one end in view, and that to fill every blossom or calyx cup with the spray.

"There are two types of nozzles that are used almost exclusively for the distribution of liquids. Perhaps the most popular among these are the Bordeaux and Seneca nozzles which throw a flat spray or a solid stream, and the Vermorel nozzles which throw a cone-shaped spray, which may be graded from medium coarse to extremely fine, depending upon the pressure and the tip that is used upon the nozzle. It is a big advantage in nozzles of this class to have them joined to the connecting rod so they may be turned at any angle to the rod that is desired. Any of these nozzles may be used singly or in batteries of 2 to 4."

FUNGICIDES AND INSECTICIDES.

A brief treatise on the subject of spraying was issued during the past summer by the Agr. Exp. Sta. at Columbia, Mo. It is bull. No. 23. It contains formulæ for combatting insects and fungi and a spray calendar. Among other interesting points mentioned are the following:

"Plant diseases are caused by some or all of 3 causes—fungi, bacteria, and insects. Many fruit growers attribute the failure of their plants to bad weather; too wet, too dry, too hot, or too cold. These causes are only secondary and their influence is of minor importance. By far the greater amount of damage done to fruit and vegetables is due to fungi, which are minute plants closely related to the moulds, and live entirely on the bodies of the higher plants. These fungi are very numerous, occurring everywhere on the bodies of both dead and living plants and sometimes on animals. When occurring on dead tissues, they cause the tissues to rot or decay, while on the living plants cause various effects which we know as diseases. These diseases are often attributed to bad weather, but as said above, the weather exerts only a secondary influence. For instance, in the early spring, just after the apple has dropped the petals from its flowers, many of the young fruits are found to have turned yellow and dropped off. Close inspection of these yellow fruits discloses a black mould growing on the body of the apple and also on the stem. Many persons consider this blackening to be directly caused by the cool, wet weather in which it always occurs. It is, however, caused entirely by the apple scab fungus, which develops most rapidly in the cool, wet weather.

"The curling of peach leaves in spring will take place in the same sort of weather, and like the apple scab, is caused directly by a fungus attacking and living on the tissue of the peach leaves. It may be seen as a white mould covering the curled parts of the leaves or twigs. The mould which attacks the fruit of the peach at the time it begins to ripen, causing the fruit to become covered with a grayish mould and quickly rot, is another of the many fungi which attack and destroy the fruit cro

"No plant is exempt from the ravages of fungi. Nearly all of them develop more rapidly in wet than in dry weather, and the cool, wet weather of spring will usually be followed by a great loss of the fruit through the ravages of fungi. In such cases, it behooves the fruit grower to spray and spray thoroughly.

"For all forms of fungous diseases certain measures may be adopted to control their development. When once a fungus is well established in the plant, however, there is no way by which the disease may be eradicated. Plants differ from animals in being unable to take into their bodies remedial agents, and on this account all material intended for the control of diseases must be put on the outside of the plant. Boring holes in the trees and injecting materials of unknown composition is to be condemned, since it does more damage to the trees than good "

STRAWBERRY CROWN GIRDLER.

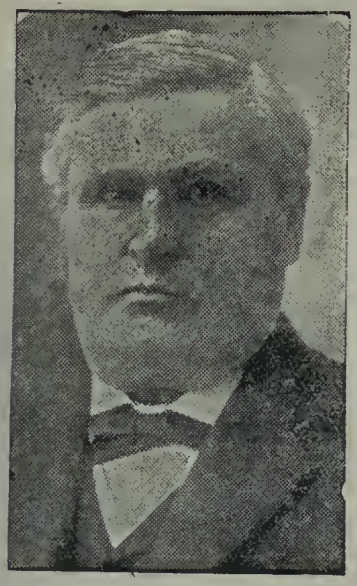
The Maine Agri. Exp. Sta. has sent out Bulletin 123 on insects. The strawberry crown girdler is discussed with reference to its tendency to enter houses, and data concerning its food plants and suggestions as to remedial measures are given. Notes on other insects which have been conspicuous during 1905 are recorded. Among these are the tussock moth, red-humped caterpillar, stalk borer, mourning cloak butterfly, chain dotted geometer, rosechafer, carpet beetle, wire worms, and a grey snout beetle. A list of insects sent to the station in 1905 for identification is appended.

It is pointed out that the strawberry crown girdler in the larvæ or grub stage feeds on the roots of grasses and other plants. Strawberries are especially susceptible to attack and should not be set in or very near soil infested by these grubs. The only known practical remedy is clean cultivation. The adult beetles feed upon the leaves of the strawberry and many other plants. When they are numerous enough to cause much injury, arsenate of lead should be used as a spray.

Send us two new subscriptions to THE CANADIAN HORTICULTURIST, and we will extend your own subscription one year. Send us one, and we will extend it six months. The more subscriptions, the greater influence behind the editorial chair

The Horticultural Societies of Ontario are Active

THE Windsor, Walkerville and Sandwich Hort'l Society held its annual meeting on Jan. 9, elected officers and transacted other important business. The treasurer's report showed that there was $383.44 cash on hand. It was decided that the premium magazine which is given for a year to each member be changed from *The Garden Magazine* to the home paper, THE CANADIAN HORTICULTURIST.



Mr. Archibald McNee
President Windsor Horticultural Society

Plans were discussed to make the city of Windsor one of the beauty spots of Essex. Two or three public meetings will be called during the winter when lectures will be given and matters discussed whereby the society can accomplish the most good in this direction.

The following officers were elected: Hon.-pres., S. Lusted; pres., Archibald McNee; 1st v.-pres., C. J. Stodgell, Walkerville; 2nd v.-pres., Geo. Lanspeary; sec., John O. Cheyene; treas., J. T. J. Reynolds; auditors, Messrs. Holton and Templeton; directors, Messrs. Shepherd, Sweeney, Diesburg, Nairn, Bushell, Purcell, Lusted, Powell and Smith.

THE WOODSTOCK SOCIETY

At the annual meeting the reports demonstrated that the society has done good work during the past year. The president for last year, R. W. Woodroofe, read an address, in which he outlined the work of the society for the year. The sec.-treas.'s report showed that the receipts were $308.81, and the expenditure, $213.06, leaving a balance of $95.75 on hand. The paid-up membership was 92.

The election of officers resulted as follows: Hon.-pres., R. W. Woodroofe; pres., J. W. Armstrong; 1st v.-pres., T. L. Clarkson; 2nd v.-pres., Wm. R. Vroman; directors: Mrs. Hoare, Mrs. Armstrong, Messrs. Tindale, Whaley, John Whitehead, D. C. Richmond, Ewing, Close, Bingham; auditors, Messrs. Hoare and T. L. Clarkson.

A by-law submitting the bringing into force of the Parks Act, was passed by a large majority at the last municipal elections in the city, and a park commissioner is now assured. This result has been brought about entirely by the efforts of the Woodstock Hort'l Society, the members of which are to be congratulated on the outcome of their work. The people appear to have been thoroughly disgusted with the manner in which this department had been managed by a committee of the council in the past, and to realize that well-kept parks and boulevards have something to do with the progress of a city. The chairman of the parks committee two years ago boasted that he had saved $70 out of a $200 or $300 appropriation made by the council for his department for the year. With continuity of purpose, Woodstock can be made as attractive a little city as can be found in the Dominion

THE SOCIETY AT OAKVILLE

At a meeting of the Oakville Hort'l Society, held on Jan. 9, a resolution was passed, dealing with the substitution of varieties by nurserymen. Much loss and injury has resulted to the fruit growing interests of that district, through the careless manner in which nurserymen have in past years filled orders for nursery trees, especially in the matter of substitution without the consent of the buyer. This practice entails much hardship on fruit growers, because of the length of time that must elapse before the grower can become aware of his loss through such substitution. The society decided to ask the Ont. Hort'l Assn. to petition, on behalf of the district societies, the Hon. Sydney Fisher, Min. of Agri., at Ottawa, to cause to be enacted a measure that would compel nurserymen to guarantee that all fruit trees, bushes and plants sold by them shall be true to name.

THE ELORA SOCIETY

Our annual meeting for election of officers was held in the town hall, Elora, on the evening of Jan. 9. The new act or law relating to societies was discussed, as a great many members did not fully understand it. We hope that societies will fall into line with the new act, and also that all societies will roll up a large subscription list to THE CANADIAN HORTICULTURIST, as we consider it worthy of support and a place in every home. Our society during the past year has been successful, and we hope for more success in 1907.—Jas. W. Love, Elora

ANNUAL MEETING IN BELLEVILLE

There was a fair attendance at the recent annual meeting of the Belleville Hort'l Society. Considerable interest was taken in the election of officers for the ensuing year. It resulted as follows: Pres., W. C. Reid; 1st v.-pres., H. J. Clarke; 2nd v.-pres., S. J. Wedden; sec.-treas., W. J. Diamond; directors: Messrs. W. Rodbourne, D. Barrager, S. A. Gardner, J. Harris, E. T. Cherry, Mayor Sulman, W. J. Diamond, F. D. Diamond and W. Kemp.

The treasurer's report for the past year shows a balance of $347.94. Plans were laid for this year's work. It is expected that the society will flourish and prosper even more than it has in the past.

LINDSAY HORTICULTURAL SOCIETY

Our annual meeting was held on Wednesday, Jan. 9, with R. Chambers, president, in the chair. The minutes of the last meeting were read and signed; also the annual report, showing receipts of $183.99, expenditure $153.30, balance on hand, $30.69. Our officers for 1907 are: R. Chambers, re-elected president; Alex. Cathro, 1st v.-pres.; R. Morgan, 2nd v.-pres.; F. J. Frampton, sec.-treas.; James Keith and J. B. Knowlson, auditors. Our directors are: T. Connolly, Alex. Skinner, G. Irwin, C. Hughan, B. A. Woods, S. Nevison, F. J. Frampton, Mrs. G. A. Milne and Mrs. H. G. Whiteside.

During the past year we have distributed over 50 numbers of THE CANADIAN HORTICULTURIST, beside other literature, have held one lecture on lawn making, and have distributed 600 bulbs, consisting of hyacinths and lilies, and a number of dahlia roots besides.

Our opinion of THE CANADIAN HORTICULTURIST is that it is taking a first place as an educator along the lines of fruit, flower and vegetable growing. It fills the long-felt need in Canada for a good publication of the kind. Keep it up. —F. J. Frampton, sec.-treas.

NEW WORK FOR TORONTO SOCIETY

Suggestions for work for the coming year were mentioned in a printed statement presented by the secretary, as follows:

"That the directors for next year take into consideration the naming of 6 streets (in different parts of the city) and offering prizes for the best kept lawn, flower beds or other floral attractions, which will add beauty and cleanliness, etc., to the surroundings.

"That three prizes be given each street, viz. $15, $10 and $5, and that the streets be named not later than April 1, 1907.

"That it be advertised, and that those who wish to compete notify the secretary not later than June 15.

"That not less than 5 residents on each street compete or 3 prizes will not be given

"That 3 competent judges be appointed; and, if in their judgment prizes have not been earned, their ruling will be final. All competitors must be members of the society, and all be amateurs." Also:

"Endeavor to obtain some permanent improvement in the condition of the boulevards and lawns of the city by the planting of trees and shrubs, and hedges at street corners, etc., and seek to establish combined effort on the part of residents of different neighborhoods.

"Appoint some qualified person to make suggestions for the beautification of a street or neighborhood, and interest the residents by advising them of the recommended and possible improvement. Invite them to meet and discuss these improvements, and so obtain the combined effort sought.

"Apply for financial assistance from the city towards the purchase of necessary shrubs, hedges, etc., and have free distribution to those who undertake to carry out suggested improvements.

Mr. J. O. Cheyene
Secretary Windsor Horticultural Society

"Conduct meetings with addresses on civic improvement on above lines, and so stimulate and arouse interest in the matter.

"As an adjunct to the above scheme, offer prizes to members of the society having the best kept lawns, boulevards, etc., dividing competition into whatever classes may be necessary."

Nova Scotia Letter

G. H. Vroom, Dominion Fruit Inspector

Up to the present writing there has been shipped from the port of Halifax a little over 200,000 bbls. of apples. Of this number, nearly all went to England; 10,000 went to Newfoundland, and equal to 4,000 went to South Africa. Part of the South African shipment was made in half barrels, part in whole barrels and the remainder in bushel boxes. There are about 75,000 bbls. to go forward yet. These are mostly Baldwin, Stark, Ben Davis, Spy, Golden Russet and Nonpariel.

The packing has greatly improved this season. The No. 3 grade is still being shipped abroad. This is a great mistake, as it certainly has a depressing effect on the market.

Prices have been disappointing, and dealers in some instances are losing money. In many cases, the apples were bought as they came from the trees, and when they were packed according to the law the shrinkage was more than the price paid would stand and leave any chance to make profit.

About 3,000 bbls. of cranberries have been sold in the Canadian markets as the result of last year's N.S. crop. The net price would be an average of $6 a bbl.

Montreal Notes

E. H. Wartman, Dominion Fruit Inspector.

During the export season at Montreal, August to November 28, 1906, 8,006 inspections were made on apples from an aggregate 394,399 bbls. and 55,475 bxs. Violations of various clauses of the Fruit Marks Act were many, yet a complete summary reveals to us a better tone than last year. Section 4 (c) shows the most violations, which clause demands a designation of quality. We found 4,648 bbls. without a designation. This demand is a very reasonable and necessary one, and it must be complied with or serious fines will follow.

STATE OF TRADE IN MONTREAL

The wholesale fruit men have about 28,000 bbls. of apples in store, of which the largest portion are No. 2 quality. This supply is not large for our local demand. We have had 60,000 bbls. of apples in store at this date in years gone by, and to-day we have a greater population to consume them. Some wholesale men complain of too many No. 2 apples in stock. I suppose apples were never so bad with sooty fungus as this season, causing them to be put in No. 2 grade. Of course No. 1 grade should be free from fungus and of good color for their kind. When the sooty fungus is seen, it disqualifies them for this grade; and when badly marked, they are not allowed in No. 2, as it will materially waste fruit. It pays a packer to always be on the alert for defective specimens and see that they are placed under a proper designation.

Apples that have been handled carefully in packing are keeping well; but, alas, how few have the careful touch that fruit demands! The fruit rotting to-day, when closely examined from bbls. or bxs., is quite evidently caused by a puncture or bad bruise, which is readily seen that starts decay. In California, where oranges are clipped off with clippers and individually wrapped, they keep for an indefinite time; so would our tender apples if handled in like manner.

Horticulture in the West

A. P. Ketchen, Deputy Commissioner of Agriculture, Regina, Sask.

The horticulture of the west has been grossly neglected. I am satisfied that western Canada could produce the major part of its requirements in the way of fruit if the matter were gone about in a systematic and determined way. Another crying need in the west is more attention to tree planting. What a transformation it would make on these wind-swept, sun-soaked prairies if every farmstead was surrounded by a windbreak and shelter belt, such as Angus McKay has planted around the experimental farm at Indian Head!

If even the roadsides were planted with trees, it would improve the general appearance of this country 100%; and the pity of it is that it might be done so easily, but is neglected because of the sheer indifference of the people whose chief interest in life, in too many cases, may be summed up in land, wheat and money.

Beautiful and effective windbreaks and shelter belts can be produced in this country in from 8 to 10 or 12 years. Elms, willows and a number of other varieties of trees grow with surprising rapidity here if only planted and given a fighting chance for their lives.

Fruit Growing in Alberta

Geo. Harcourt, Deputy Minister of Agriculture, Edmonton, Alta.

It is well known that apples have been grown at various points in Alberta. In the spring of last year, the provincial department of agriculture sent out circulars to everybody in the province known to have tried large fruits, asking them to give a list of the trees they had tried and an account of the success they had met with. From these reports and other sources, the department has selected a list of what appear to be the hardiest trees for the province, and has decided to carry on a number of experiments in order to be able to give settlers authentic information on this important matter.

The orchards are to be of an acre in extent and will be distributed at seven points, possibly eight. The places selected are those which are considered to be the most representative of the various elevations and climatic conditions prevailing in the province; they are: Medicine Hat, Magrath, Leavings, Okotoks, Didsbury, Wetaskiwin, Edmonton and, possibly in another year, one in the Vegreville or Vermilion country.

About 80 trees will be experimented with at each station, the planting operations to extend over two years. A consignment of the planting material was ordered last fall and the trees buried over winter. These will be duplicated next spring and planted directly, when the two methods will be compared. Six varieties of standard apples, two of crabs and two of plums will be experimented with.

An agreement has been entered into with reliable farmers at these different points, who have already met with some success in tree growing and, as far as possible, locations have been chosen which are sheltered by the plantations set out under the auspices of the forestry branch of the Dominion Department of the Interior. By selecting such places the department at Edmonton hopes, besides making the actual fruit experiments, to draw the attention of the farmers to the benefits to be derived from these shelter belts on the prairies.

Winnipeg Letter

J. Albert Hand, B.S.A.

That many citizens in Winnipeg do not know one variety of apples from another, is very apparent. That the dealers take advantage of the consumers' ignorance regarding this somewhat minor detail is even more apparent. The wholesale fruit houses, and through them the retail dealers, allow large quantities of fruit to reach the consuming public altogether out of season.

What does a lover of fruit want with Golden Russet apples at this season? What demand is there for pears in Dec.? What does a trained taste for Snow apples think when Ben Davis are put up instead? These and kindred games are played on the consumers of this city every day. Golden Russets appear in every fruit collection. A wholesale house has several hundred barrels of Kieffer pears. Any apple that resembles the kind required is given and the purchaser is so disgusted in many cases that he wants no more fruit for some time.

The other night, as I was going home, I saw some nice apples in a window. As they looked like good Snows, I decided to buy some. A lady waited on me and as she began to bag them I noticed they were not Snows. I called her attention to the fact, but she insisted they were "real Snow apples." When I laughed she was haughtily indignant, because I doubted her veracity, or perhaps her knowledge of varieties. The apples were small Ben Davis. I called at the next store to see if they had anything to suit. There were some large dark red apples. On enquiry I learned these were "Alexanders." I do not know what they really were.

The retailer innocently plays these tricks. Names of varieties most generally asked for are attached to any apple that has the color. Golden Russets and Roxbury Russets are all the same. It is known by most of them that a Snow apple is red and that it sells well; so, any red apple must be sold as a Snow until it's season is far past.

The wholesaler is the man to be blamed for a part of this deception. He should be thoroughly acquainted with almost every variety. In the interests of the apple trade, he should see that no variety is put in retail stores out of season. Every time a consumer gets an inferior, tasteless apple the trade is hurt. Every time a consumer gets a superior, tasty apple the trade is given a boost. A Snow or a Spy or a Russet, in season, makes the consumer want more. It is safe guessing that if wholesale houses and retailers knew the varieties and put only the best up for sale and in proper season, that the demand would be doubled.

Kieffer pears are a drug on the market when fall or winter comes. They will keep, but they are fit for preserves only. What housewife wants to start preserving at this season? She has done her preserving in summer and nothing but a profitless low price will induce a purchase for that purpose later.

The wholesale houses report a heavy business for the past 2 weeks. This will continue until Xmas. R. A. Rogers has worked night and day for several days. This firm sends carloads to points west. Their own representatives accompany the car to make delivery and prevent freezing Everybody wants Spys. Greenings and Russets are also asked for. Any Snows that have been kept in good condition are readily picked up at high prices.

A great improvement has been noted in the stock sent here from Ont. There is not ½ as much inferior fruit as came last year. A great part of the improvement is credited to the eagle eye and careful work of Dom. Fruit Insp. Philp. Good honest packing by the producer and shipper, and attention to varieties by the salesmen, will increase the sales wonderfully throughout the west. [NOTE.—This letter was written in December.—ED.]

Superior Quality Tells

"Dealers will pay extra prices for high grade fruit," said Mr. H. L. Roberts, of Grimsby, to THE HORTICULTURIST. "Last year I visited a large number of retail dealers in Ont. and Que., and I was told, in every instance, that they will pay extra money for fruit that can be depended upon in the matter of quality and of packing. Good fruit often brings less than it is worth, owing to carelessness in the manner, of preparing it for market. High grade fruit, properly selected and packed and put up in attractive packages, always commands a good price, in those markets that are overstocked with ordinary fruit—even good fruit in inferior packages."

A branch of the Ont. Veg. Grs. Assn. was organized in Ojibway, on Jan. 12, with 18 paid members. Much enthusiasm was shown. The branch is confident of increasing its membership to 100 within a short period. The branch has been named "The Sandwich West Veg. Grs. Assn. of Ont." The secretary is Wm. Henry O'Sullivan.

Choice Seeds—Free

If you are planting a garden or flower-bed: be sure and read this offer. Every lover of flowers will want to receive some of the seeds and plants listed below. These are offered *free* except for a few minutes' work among your friends and neighbors. We will send any or all of these seeds or plants to every person who will get us new subscriptions. For every new subscription you get at 50 cts. a year we will allow you the equivalent of 40 cts. worth of seeds. The prices marked are the lowest retail prices. We are able to make this offer only because we have been able to secure these goods at specially low rates. Be sure and order by number:

No. 1—PANSIES.—Giant Trimardeau, mixed, the largest of all pansies, flowers are very large, and of all colors and shades.....10c

No. 2—PANSIES.—Giant Black This pansy is another of the large size varieties with beautiful blue-black flowers.....10c

No. 3—PANSIES.—Giant Madam Perret. Plants of this variety are full and spreading, with very broad and extremely dark leaves. The color of the blossoms ranges through all shades of red, from pink to a fine deep purple, with an intermediate red edged with white.....20c

No. 4—ASTERS.—Crown Prince. This is the most perfect type of Giant Comet or Ostrich Feather Asters in existence. The flowers are much larger than those usually borne by the Giant Comet, and the petals are longer and more beautifully curled and twisted, and produced in much greater abundance. It is the latest achievement in mammoth Asters. Not so tall as the branching Asters. Flowers 5 to 6 ins. across are common. Mixed colors...15c

No. 5—ROSE CROWN COMET.—Striking novelty; flowers of the true Giant Comet type, composed of long, wavy, twisted petals, gracefully formed; densely double flowers, centre pure white surrounded by rose pink; an unique and beautiful combination.....10c

No. 6—DAYBREAK.—Simply unsurpassed. The flowers are perfectly rounded, very large and full, on long stems; the color is a charming sea-shell pink; the plant flowers very early and is a continuous free bloomer; compact, strong grower, and in all respects a desirable acquisition.....10c

No. 7—SWEET PEAS, OUR SPECIAL MIXTURE.—This mixture is made up from all the finest new sorts, and will give the most satisfactory results. We particularly recommend this selection.....10c

No. 8—Grows in perfect bush form from 24 inches high and 18 inches wide. It requires no trellis, like the tall Sweet Pea, neither does it hug the ground Verbena-like, as does the Cupid race. The flowers, of good size, are of beautiful and varied colors. Mixed colors.....5c

No. 9—DOUBLE SWEET PEAS.—Not so beautiful as large expanded single flowers. As good a strain as any, but not more than about 30 per cent. of the flowers, as yet, come double from the most carefully selected seed. Newest sorts, mixed.....5c

FOR SALE AND WANT ADVERTISEMENTS

Advertisements under this heading inserted at rate of one cent a word for each insertion, each figure, sign or single letter to count as one word, minimum cost, 25 cents, strictly cash in advance.

LANDSCAPE GARDENING—Plans drawn to scale for laying out and planting parks, cemeteries, public or private grounds. Work supervised C. Ernest Woolverton, landscape architect, Grimsby.

BE INDEPENDENT—We have a proposition that will appeal to all men interested in horticulture and who wish to be their own employees. Write immediately.—THE CANADIAN HORTICULTURIST, 506-7-8 Manning Chambers, Toronto.

NO MORE BLIND HORSES For Specific Ophthalmia, Moon Blindness and other Sore Eyes, BARRY CO., Iowa City, Iowa, have a cure.

THE WILLIAMS STRAWBERRY

The Great Commercial Strawberry of the Niagara District

It is quite safe to say that more Williams Strawberries are grown in the Niagara District than all other varieties combined. It is certainly the kind for best results over a wide range of territory and adapts itself to a variety of soils. Be sure and get plants of strong vitality and true to name. I am now booking orders for Spring shipment at $4.00 per 1,000, 50c. per 100. Can also supply limited quantities of other standard sorts at reasonable rates.

THE CARLETON FRUIT FARM

WM. H. BUNTING ST. CATHARINES, ONT.

Mention The Canadian Horticulturist when writing

Decorative Shade and Weeping Trees

CUT LEAF WEEPING BIRCH

Beyond question one of the most beautiful and popular of all weeping or pendulous trees. Its tall, slender, yet vigorous growth, and graceful drooping branches and silvery white bark, present a combination of attractive characteristics rarely met with in any other tree. I have an unlimited quantity of all sizes from 4 to 6 feet, 6 to 8 feet and 8 to 10 feet. Special prices on application.

WEIR'S CUT LEAF MAPLE

A silver maple with remarkable dissected foliage. A most rapid grower with long, slender drooping shoots which give it a most graceful appearance. I have several hundred fine specimens in two sizes, 6 to 8 feet and 8 to 10 feet.

LANDSCAPE GARDENING. The character of this work obviously suggests the desirability of employing none but persons capable of exercising correct judgment and good taste in their execution. I have on my permanent staff a thoroughly qualified Landscape Architect and Draughtsman who will cheerfully furnish plans, specifications and estimates where required.

E. D. SMITH

HELDERLEIGH NURSERIES - WINONA, ONTARIO

Mention The Canadian Horticulturist when writing

DOMINION NURSERIES

ESTABLISHED 1860

Fruit and Ornamental Trees
Shrubs and Vines

WE HAVE NO AGENTS!
WE SELL DIRECT!

Catalogue for 1907, just out, mailed on application

The Smith & Reed Co.,
ST. CATHARINES - ONTARIO

BETTER FRUIT

Is what every fruit grower should grow.
Is what every fruit dealer wants.
Is what we can tell you how to grow.
Is the only strictly Horticultural Paper in the United States.
Is what you should subscribe for, if you want to know how to realize more money for your fruit.

SUBSCRIPTION PRICE, $1.00 PER YEAR
SEND FOR SAMPLE COPY

Better Fruit Publishing Co.
HOOD RIVER, OREGON
Mention The Canadian Horticulturist when writing

Speakers for Horticultural Societies

The secretary of the Ont. Hort. Assn. is endeavoring to secure some well-known speakers from the U.S. to address meetings of horticultural societies in Ontario. A letter has been received from J. Horace McFarland, president of the American Civic Assn., and one of the best known speakers on civic improvement and horticultural matters on the continent, in which he offers to address meetings of horticultural societies at a charge of $25 and his expenses, the lantern for the stereoscopticon lecture to be supplied by the local society. Usually Mr. McFarland charges $50 a lecture and his expenses, but he is willing to accept the lower rate provided the societies will arrange to hold their meetings successively.

Any horticultural societies in the province that would like to engage Mr. McFarland to address a meeting during March or April should write to the secretary of the association, H. B. Cowan, THE CANADIAN HORTICULTURIST, 507 Manning Chambers, Toronto. Mr. McFarland has a new lecture this year, entitled "A Crusade Against Ugliness," which is said to be both entertaining and attractive.

KIL-O-SCALE

The original, most popular and most effective SCALE DESTROYER on the market. KIL-O-SCALE combines the two infallible remedies—SULPHUR AND PETROLEUM. Beware of Oil Solutions that will SEPARATE, endangering the life of the tree. Do not be persuaded to buy inferior imitations. Write for circular, telling what users have to say about KIL-O-SCALE. Our 1907 Seed and Implement Catalogue free. Write for it.

GRIFFITH & TURNER CO., 207 N. Poca Street, Baltimore, Md.

Gladiolus Bulbs

Groff's World's Fair Collection
Groff's Pan-Am. Ex. Collection
Groff's New Named Varieties

ALSO AMERICA, PRINCEPS AND OTHERS

CANNAS—A Large Stock of the Best Varieties
DAHLIAS—Many kinds. Write for Catalogue

JOHN A. CAMPBELL
SIMCOE, ONTARIO

Mention THE CANADIAN HORTICULTURIST

Dominion Line

ROYAL MAIL STEAMSHIPS

Portland to Liverpool

WELSHMAN	Mar. 2nd
DOMINION	" 9th
SOUTHWARK	" 16th
CANADA	" 23rd
VANCOUVER	" 30th

*These Steamers carry all classes of passengers

Portland to Bristol
(Avonmouth Dock)

MANXMAN	Mar. 7th
ENGLISHMAN	" 21st
TURCOMAN	April 4th
MANXMAN	" 18th

Favorite steamers for all kinds of perishable cargo having fan ventilation, cold storage, and cool air chamber.

GEORGE W. TORRANCE, Freight Agent . 28 Wellington St. E., TORONTO
M. A. OVEREND, J. W. WILKINSON . . . . . Travelling Freight Agents
DOMINION LINE—PORTLAND, Maine.

Mention The Canadian Horticulturist when writing.

FOUR NEW ENGLISH

SWEET PEAS

NORA UNWIN

This charming variety especially takes its place easily in the front rank of pure whites, far out-distancing "Dorothy Eckford," which was hitherto considered the finest white, being larger, purer and finer form. It has the same bold, wavy standard as "Gladys Unwin," and like all the progeny of same, it is true to name and does not sport. Original sealed packet..... .35

MRS. ALFRED WATKINS

A superb pink of "Gladys Unwin" type, color a pale pink much like the old "Princess Beatrice," which was thought so much of when it was introduced many years ago; but the flowers of "Mrs. Allred Watkins" are very much larger and have the beautiful bold, wavy standard of "Gladys Unwin." It will be found one of the best market varieties for cut bloom. Original sealed packet..... .35

FRANK DOLBY

A lovely pale blue, the same shade as "Lady Grisel Hamilton," but **very much larger**, and being also bred from "Gladys Unwin," it has the same bold, wavy standard and large size of its parent. It is to-day the largest and finest pale blue Sweet Pea. Original sealed packet..... .35

E. J. CASTLE

A magnificent addition to the "Gladys Unwin" class, with the same large flowers and bold, wavy standard of its parent. The color is a very rich carmine rose with salmon shading in the standard, and this, over and above its other merits, has a rich striking effect, especially in artificial light. Original sealed packet .35

1 Packet each above 4 varieties New Sweet Peas, $1.25

J. A. SIMMERS

SEEDS —— BULBS —— PLANTS

TORONTO, ONTARIO

Mention The Canadian Horticulturist when writing

For Gardeners and Fruit Growers

We announced in our last issue that THE CANADIAN HORTICULTURIST would send a copy of Howard Evart Weed's "Spraying for Profits" to any address on receipt of 15 cents. The response was immediate, as many requests for copies have been received from prominent fruit growers and gardeners. This little book is important to every fruit grower and gardener, and is worth many times its price. THE CANADIAN HORTICULTURIST has made arrangements to supply its readers with copies.

As a special inducement to readers and friends of THE CANADIAN HORTICULTURIST, we will send this book to anyone who will send us *one new* subscription. We know every reader of THE CANADIAN HORTICULTURIST is interested in horticulture, and along these lines this book is very desirable.

The seed catalog of Wm. Ewing & Co. of Montreal has been received. In it are the names and descriptions of all the leading varieties of vegetables, flowers, perennial plants, roses and so on. A large number of the most up-to-date appliances and tools for use in the garden and orchard are also handled by this enterprising firm. All interested should send for a copy of this excellent catalog.

The cuts used to illustrate the article in this issue entitled: "Results in Growing Gladioli," were kindly loaned by the Simcoe *Reformer*.

Swift's Arsenate of Lead

This is the most efficient and lasting of all insecticides, and at the same time the safest. Swift's Arsenate of Lead sticks to the foliage after application and stays on; rains will not wash it off. This means a saving of time and solution in respraying, and uninterrupted protection of your plants or trees. There is absolutely no danger of burning or scorching the foliage no matter how strong a solution is used; solution is made with water only, or it may be combined with fungicides. Swift's Arsenate of Lead is the perfect insecticide for the Coddling Moth, Potato Bug, Gypsy Moth, Tent Caterpillar and all other leaf-eating insects.

Write for booklet and name of nearest dealer.

MERRIMAC CHEMICAL CO., 61 Broad St., BOSTON, MASS.

"PAGE FENCES WEAR BEST"

Made of High Carbon Wire—we'll prove it to you. COILED, not crimped. This makes it still stronger in service. It stays taut. Painted WHITE over heavy galvanizing—rust proof. Experienced dealers to erect it. Leads all in sales —as in merit. Get illustrated booklet and 1907 prices before buying. 209

THE PAGE WIRE FENCE COMPANY, LIMITED, Walkerville, Toronto, Montreal, St. John, Winnipeg

EWING'S
RELIABLE SEEDS

And Everything for

GARDEN, GREENHOUSE, FARM AND LAWN

One cannot tell much about seeds' reliability by their appearance.

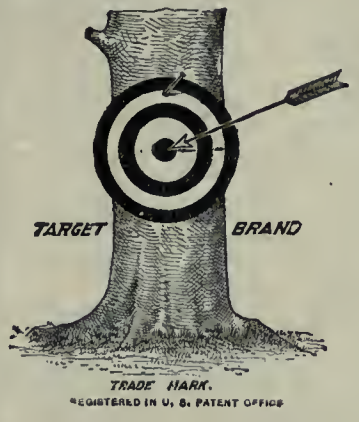
" The Harvest Test is the Only Test."

EWING'S SUPERIOR SEEDS

Are the result of many years of careful selection, and in the ground they can be relied upon to produce bigger and better crops. Thousands of planters all over Canada can vouch for this fact. Our 1907 Catalogue is more complete than ever and we want to mail you one. Send along your address.

WILLIAM EWING & CO
SEEDSMEN
142-146 McGill Street, Montreal

Mention The Canadian Horticulturist when writing



"TARGET BRAND"

Scale Destroyer

IS NOW THE PEER OF OIL SPRAYS

FOR SAN JOSE SCALE, OYSTER-SHELL BARK-LOUSE APHIS AND SIMILAR PESTS

Destroys both insects and eggs. Is NOT in the least injurious to trees, etc. Does not separate while spraying, and CAN BE instantly PREPARED right IN THE FIELD.

JORDAN HARBOR, ONTARIO

"Having had occasion to use a trial can of your 'Target Brand' Scale Destroyer on a tree that had the scale as bad as a tree could have it, I gave it one application last spring, and have found it a success after a thorough examination. I am convinced that it will do the work, as I cannot find a live scale left."—ENOS J. FISHER

(Mr. Fisher has bought a second supply to use on the trees which surrounded this one.

We have others still stronger than the above. See previous issues.

W. H. BRAND
Canadian Representative and Salesman
Jordan Station, Ont.

Mention The Canadian Horticulturist when writing.

POULTRY DEPT.

Conducted by
S. Short, Ottawa

In the February issue reference was made to the two methods of hatching chicks—by hen and by machine. We shall discuss in this issue some of the different chick foods that are equally good for the chicks, whether reared in a brooder or by the mother hen. Some breeders use broody hens to rear the chicks hatched by an incubator. This is a good method if the season is advanced, say, May and June, but in March and early in April broody hens are not obtainable in sufficient numbers, and it is then that a brooder becomes a necessity.

As with the incubator, so with the brooder, each manufacturer sends the fullest and most complete directions. The operator cannot do better than follow those instructions to the letter, and only change when experience has taught him that better results will follow any changes made.

No machine will rear all the chicks put into it, or very rarely. It is true also that 90% of the hen mothers trample one or more of her brood to death in the 4 or 5 weeks they are with her. It would be unfair to the machine, too, to blame *it* for the chicken mortality which may result from earlier causes The hens that laid the eggs may have been laying hard all winter and are slightly run down, and while the egg hatches the chick may be constitutionally weak, and no care, whether by hen or brooder, will save it. Buy your eggs from vigorous stock, preferably from fowl that have been kept in cold houses; that is, where no artificial heat is used, and again from fowl that have been fed chiefly grain and very little soft food or mash, for experiments have proved that fertility of egg is higher where hens have been fed dry food. This is important early in the season.

Having removed the chicks from the incubator to the brooder, which has been prepared for their reception according to received directions, the next care is to feed them carefully. Some experts do not recommend feeding for the first 36 hours because the yolk of the egg (on which the chick lives immediately after hatching) takes that time to be absorbed or assimilated. I think that 36 hours is rather long. They will eat readily at 24 hours after hatching. Then let them have very light feed. Fine grit should be in the litter or chaff on the floor of the brooder, and will be picked up by the chicks to their advantage. Early in the season it is much harder to feed successfully than in the warmer weather when the brooder can be placed outside. When obtainable, it saves a good deal of time to feed the prepared foods such as the Cyphers Chick Food, which is composed of the different grains and mea meal in the proper proportions. This food ca be used for the first 4 weeks, and the cheape grains afterwards.

For soft food, the Puritan Meal is muc thought of in Ottawa, and is generally use Hard-boiled eggs, chopped fine, are alway good, and stale bread, soaked in milk an squeezed dry, into which a little fine choppe onion or lettuce has been added, makes a goo soft feed. If blood or meat meal is not con venient, boiled liver cut fine and fed every or 4 days is excellent. It is well to understan that every 15 chicks put into the brooder wi raise the temperature one degree, so watch th temperature that it is neither too hot nor col especially for the first week.

Over 1,500 New Subscriber

Within the past five months, or since w reduced the subscription price, we have secure with the help of our friends, over 1,500 ne subscriptions to THE CANADIAN HORTICULTU IST. It meant much work and expense, bu only by securing more subscriptions are w able to give our readers THE CANADIAN HORT CULTURIST in its present form for 50 cts. a yea

Many of these new subscriptions will beg with the February issue. We expect to furth increase the number of our readers by 1,0(beginning with the March number. In o efforts to secure subscriptions we want eve subscriber and friend to do their part, for on with your help will we attain the 10,000 ma by Jan. 1, 1908.

In return for your support and help we w continue improving THE CANADIAN HORTICU TURIST, giving our readers a better paper f 50 cts. than what they formerly paid $1.00 fo Every department will be greatly strengthen during 1907; and, when we turn over a new le into 1908, we want to know that we have a class readers who are pushers and who are interest in THE CANADIAN HORTICULTURIST for the go it is doing.

Let Me Sell You a Chatham Incubator —On Time

Do you know there is big money in raising poultry? Do you know there is more money in running a good incubator than in almost anything else you can do for the amount of time and trouble it takes? Do you know my incubator will pay you a bigger profit than any other thing you can have on your place?

Well, all these things are true, and I can prove it. Thousands of people all over Canada have proved it every year for the last five years.

I want to quote you a price on my Chatham Incubator, —sold ON TIME. I want to send you my Chatham book. This incubator book is *free*— I'll send it to you for just a postal card. It tells you a lot you ought to know about the Poultry business—it tells you how to make *money* out of chickens—it tells you how my Chatham Incubator will make you *more* money than you can make with hens—far more, and with less trouble.

This book tells you how my Incubators are made—why they are the best ever invented—and why I sell them ON TIME and on a 5-Year Guarantee.

My Company has been in business in Canada for over 50 years. We are one of the largest wood-working factories in the country. We also operate a large factory at Detroit, Mich. We have the Incubator and Brooder business down to a science.

Chatham Incubators and Brooders will make you money, for a Chatham Incubator will hatch a live, healthy chicken out of every fertile egg put into it, in 21 days.

Will you write for my book today? Do it now while you think of it. Just say on a postal "Please send me your Incubator Book"—that's all. Address me personally.

Manson Campbell
President
The Manson Campbell Co., Ltd.
Dept. F59, Chatham, Ont.

NOTE—I carry large stocks and ship promptly from branch houses at Calgary, Alta., Montreal, Que.; Brandon, Man.; Halifax, N. S., Victoria, B. C., and factory at Chatham.

IF YOU HAVE APPLES OR POULTRY TO CONSIGN

we can handle them for you to advantage. If apples are in car lots, write us and we can sell them for you f.o.b. your station

THE DAWSON COMMISSION CO Limite
Cor. West Market and Colborne St.
TORONTO ——— ONTARIO

Spraying for Profit

By HOWARD EVARTS WEED, M.S.

A practical hand-book describing the best methods for suppressing the more common injurious insects and fungous diseases. This book should be in the hands of every fruit man and gardener. It is well worth the price of 15c. a copy. Send for it now, and ask for a copy of our free book catalog.

The Canadian Horticulturist
506-7-8 Manning Chambers Toronto

38 Leading Varieties
of STRAWBERRY and
CANE BERRY PLANTS
7 Varieties SEED POTATOES
Illustrated Catalogue Free
JOHN DOWNHAM, Strathroy

John B. Smith & Sons
Limited
Cor. Strachan and Wellington Aves.
TORONTO

JOHN B SMITH & SONS. LIMITED. TORONTO
SASH BAR & ALL WOODWORK. FOR GREENHOUSE CONSTRUCTION

Manufacturers . . of . .
LUMBER
LATH
SHINGLES
DOORS
SASH
BLINDS
SILOS, ETC.

Clear Cypress for Greenhouse Work
Mention The Canadian Horticulturist when writing

Tried to Evade the Law

Early in February, the daily press of this country published reports of an attempt to evade the Fruit Marks Act by a well-known Canadian apple man, who has been exporting via the port of Portland, Me. According to the Portland *Daily Press*, of February 2, the reports were well-founded. That paper stated that W. W. Moore, Chief, Markets Division, Ottawa, spent some days in Portland investigating the case. The investigation showed that one shipper raised the grade mark on two cars of 300 bbls. of apples. This was done in Maine because there is no law there forbidding such a practice. The shipment was from Colborne, Ont., and originally bore the marks of grades No. 2 and No. 3, which grades the apples fairly represented. The grade marks, however, were not placed in the customary position on the barrel head. Some of the barrels were marked as follows:

CANADIAN APPLES,
Packed by
No. 2.
—— ——, Colborne, Ont.

Others had No. 3 instead of No. 2.

The custom is to mark the grade after the name of the packer. The marking of the grade, No. 2, after the words "Packed by," was for the purpose of giving the impression that it was not the grade but a number indicating the packer of that barrel.

The shipper or his agent marked all the apples previously marked No. 2, No. 1 XXX, and the apples previously marked No. 3, No. 2 XX, placing the marks in the customary place. Mr. Moore watched the agent mark the barrels of two cars and then presented his official card which showed him to be an employee of the department of agriculture. Mr. Moore believes that this is the first attempt that has been made to evade the Canadian law in this manner. Fortunately, it was "nipped in the bud."

Fruit Growers
ATTENTION!

WE HAVE THE NEW "FRIEND" NOZZLE
The Very Latest and Very Best

Also a large stock of the following lines at lowest prices
BLUE VITRIOL
FLOWERS OF SULPHUR
PARIS GREEN
GRAPE TWINE
PRUNING SHEARS
SOFT GALVANIZED WIRE

Alexander Hardware Co.
LIMITED
65 King St. East, Hamilton
Mention The Horticulturist when writing

Our Model Incubators and Brooders

Are the only PANACEA for failure—past, present and future. Just take a few minutes and read the following one of many hundreds of unsolicited testimonials from our customers:

MASONVILLE P.O., ONTARIO

Dear Sir:—

After trying an incubator for two years and spoiling eight hatches of eggs, I threw the incubator away in disgust, never meaning to try again, knowing that it was not the fault of the eggs, as I raised over 400 under hens. Last December I read Chas. A. Cyphers' book, "Incubation and Its Natural Laws," after which I ordered a Model, which I had to work under trying conditions. First, I only had eggs from pullets mated with cockerels, mated up only five days before I set incubator. Second, the location in a room that varied from 65 to 28; for two days and nights the temperature was at 30 to 32, and your Model only lost one-half degree—from 103 to 102½. The results are just grand. Out of 71 eggs I got 65 of the strongest chicks I ever saw. All came out on the 20th day, within five hours of each other. Two of the eggs I broke. The other four must have died about the 16th day (weak germ). They are now all safe in a Model Colony Brooder, and all 65 as healthy and well as though it were summer. Temperature inside brooder steady night and day at 90. Outside blowing and snowing as hard as it can.

R. H. CRUMP

Send for our Catalogue, and get the same treatment and results Mr. Crump has got. Manufactured by

MODEL INCUBATOR CO., LIMITED
190 RIVER STREET —— TORONTO, ONTARIO
Mention The Canadian Horticulturist when writing

SELECTED SEEDS
GIVE SATISFACTORY RESULTS

¶ Our Vegetable Seeds are of undoubted purity and produce abundant crops. Our Flower Seeds are true to name and of the highest germinating power. Sutton's Specialties are always in stock. We do not make up special collections of seeds and advertise 30c worth for $1.00 as specials. We give every customer $1.00 worth of pure seeds for every dollar spent with us. A trial order will convince you that we sell only those seeds that are sure to grow. Illustrated catalogue sent free to those who wish to grow pure seeds. Send your name to-day.

DUPUY & FERGUSON
36 JACQUES CARTIER SQUARE MONTREAL
Mention The Canadian Horticulturist when writing

Ferry Seeds are not an experiment, but with proper cultivation, they assure success from the start. Users have no doubts at planting nor disappointments at harvest. Get

FERRY'S SEEDS

for biggest, surest, best crops—at all dealers. Famous for over 50 years. 1907 Seed Annual free on request.

D. M. FERRY & CO., Windsor, Ont.

Imperial Bank
OF CANADA

Established 1875

Head Office, - Toronto

Capital Paid-up, $4,700,000.00
Rest, - - $4,700,000.00

Savings Department at all Branches
Interest allowed on deposits of One Dollar and upwards and credited four times a year.

Items of Interest

At the annual meeting of the N.B. Fruit Growers' Assn. held at Fredericton on Feb. 15, the following officers were elected for the ensuing year: Pres., J. C. Gilman, Kingsclear; v.-pres., I. W. Stephenson, Sheffield; treas., Henry Wilmot, Lincoln; sec., T. A. Peters, Fredericton; directors, J. W. Clark, J. P. Belyea, Geo. McAlpin, Wm. Raymond, J. H. Tilley, Wm. McIntosh, John Ferguson, F. B. Hatheway, B. Flewelling, Norman Hallett and Isaac Stephenson. In the next issue of The Canadian Horticulturist will appear a report of the proceedings of the convention.

The 7th annual banquet of the members of the Toronto branch of the Ont. Veg. Grs. Assn. on Feb. 6, was the largest and best yet held by the Assn. It was attended by over 150 growers. The well-known people present included Messrs. A. Campbell, M.P.; W. Maclean, M.P.; J. W. St. John, M.L.A.; Hermann Simmers, and others.

The new officers of the Strathroy Hort'l Society are as follows: Pres., T. Benstead; 1st v.-pres., T. Luscombe; 2nd v.-pres., John A. Anderson; sec.-treas., R. F. Richardson; directors, Albert McPherson, Geo. Richardson, John Robertson, D. Patterson, F. W. Atkinson, J. W. Prangley, Chas. Beckett, W. Murray, J. J. Condon and W. E. Buttery. It is the intention of the society to distribute seeds and bulbs to members, to hold a midsummer exhibition, and to encourage both horticulture and floriculture in other ways.

The following officers were elected for the ensuing year at a recent meeting of the Elora and Salem Hort'l Society: Pres., Wm. Findlay; 1st v.-pres., Robt. Tapham; 2nd v.-pres., Alonzo Schafer; sec.-treas., Jos. W. Love; auditors, Messrs. Henry Clarke and Fred. J. Ross, and 9 directors.

Northern Grown Trees

Apple, Pear, Plum, Cherry, Peach, Nut and Ornamental Trees. Small Fruits, Roses, Shrubs, cheap. Specialties: Wismer's Dessert Apple and Mammoth Prolific Dewberry.
Send for free Catalogue—it tells the whole story.

J. H. WISMER, NURSERYMAN PORT ELGIN, ONT.

FLOWER POTS

Send us your Spring order for pots, etc.; which will receive our prompt attention.

Try our pots for growing early tomato plants in.

SEND FOR PRICE LIST AND CATALOGUE

THE FOSTER POTTERY CO., LIMITED
Main St. West, Hamilton, Ont.

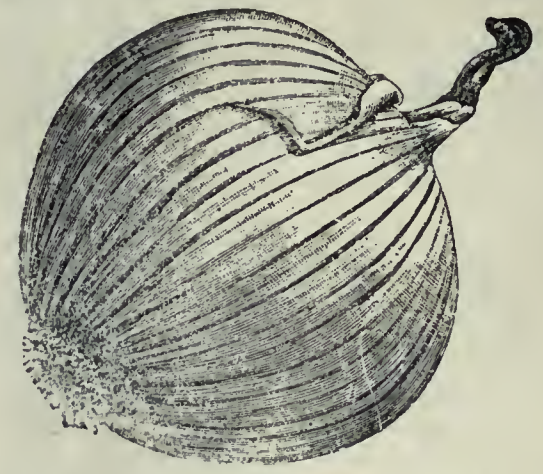
Mention The Canadian Horticulturist when writing

Small Fruit Plants

GOOSEBERRY, Red, White—CURRANTS, Red, White, Black—RASPBERRY, Red, Yellow—BLACKBERRIES—STRAWBERRY-RASPBERRY—GRAPEVINES, Campbell's Early, Eaton, Worden, Moore's Early, Salem, etc., all hardy sorts—STRAWBERRY PLANTS—HOUSE PLANTS—ROSES—RHUBARB AND ASPARAGUS ROOTS

ORDER EARLY

WILLIAM FLEMING
NURSERYMAN
P.O. Box 54 Owen Sound, Ontario



AILSA CRAIG ONION

The large, nearly globe-shaped onions, with thin skin of bright yellow color, are of immense size, measuring from twelve to eighteen inches in circumference, while under special cultivation specimen bulbs have been raised to weigh from three to five pounds each. They ripen up hard and fine, and present the handsomest possible appearance; the flesh is pure white, fine grained, mild and delicate in flavor; excellent for fall and early winter.

The constant re-selection of pedigree stock of Ailsa Craig has resulted in a marked improvement both in size and form. Until a few years ago the best stocks of Ailsa Craig were frequently more flat than round or oval in shape, but the strain we now offer is unrivalled for perfection of form combined with size and weight.

In competition with all other varieties Ailsa Craig has won a series of important prizes in England absolutely without a parallel. Price, pkt. 10c., oz. 30c., ¼ lb. $1.00.

J. A. SIMMERS, TORONTO, ONT.
SEEDS BULBS PLANTS

Mention The Canadian Horticulturist when writing.

You Want First-Class Peach Trees

CANADIAN GROWN
AT REASONABLE PRICES

WE HAVE THEM—WRITE FOR CATALOGUE AND PRICE LIST

¶We grow a general line of fruit and ornamental stock and guarantee delivery in first-class condition.

Pelham Nursery Company

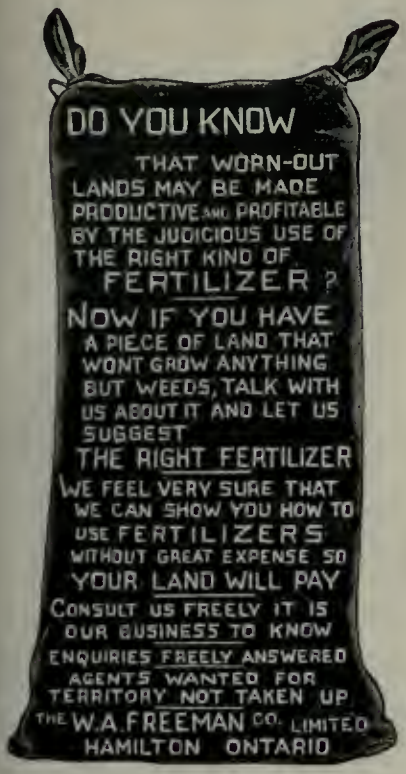
Nurseries—Pelham Township

Offices—49 Wellington Street East, Toronto, Ontario

☞ Please Address all Correspondence to Our Offices

Mention The Canadian Horticulturist when writing

Profit Producing Fertilizers



Vegetable Experiments

The Ont. Agric'l and Exp'l Union intends conducting cooperative experiments with vegetables. The following is a copy of a pamphlet issued by Prof. H. L. Hutt, O.A.C., Guelph, who has charge of the work, and to whom applications for seeds should be addressed.

"For a number of years we have been conducting a system of cooperative experiments with fruits. There are now over 2,000 persons throughout the province who are carrying on these tests. This work is proving of great service to those engaged in it, not only because of its practical nature, but because of its educational value.

"It has been decided to extend the work this year to include vegetables as well as fruits. A beginning will be made with beets, carrots, lettuce, and tomatoes, and in due time other garden crops will be added to the list.

"This work is carried on through the agency of the Experimental Union, an organization managed by the officers, students and ex-students of the O.A.C., but every resident in Ont. interested in horticulture is invited to join in the work and benefit by the results of the experiments.

"The following list gives the varieties which have been selected for each experiment. These have been selected from among those which have given the best results in the extensive experiments conducted at the college, and are most likely to give satisfaction in the garden of the amateur or commercial grower: Exp't No. 1, Beets—Black Red Ball, Eclipse, and Model; Exp't No. 2, Carrots—Chantenay, Danvers Half Long, and Rubicon; Exp't No. 3, Lettuce—Black Seeded Simpson, Denver Market, and Hanson; Exp't No. 4, Tomatoes—Earliana, Stone, and Success.

"Each person in Ont. who wishes to join in the work may choose any one of the experiments for 1907, and send in his application.

TREES, SHRUBS, SMALL FRUIT PLANTS
ETC.

Are in good demand. Are your orders booked for Spring. See our priced Catalogue for choice varieties. Prices and stock are right. Shipped direct to customers. Try us, you will come again. NO AGENTS.

A. G. HULL & SON, Central Nurseries, St. Catharines, Ontario

SEND FOR OUR CATALOGUE

It contains everything of the newest and best for the *Farmer*, the *Market Gardener* and the *Amateur*

GRAHAM BROTHERS
53 & 55 Sparks Street
OTTAWA

High-Grade Seeds, Plants, Tools, Poultry Supplies, Floral Work

The Latest Novelties in Sweet Peas

Mention The Canadian Horticulturist when writing

Wouldn't You Like to Grow Some of the Old English Flowers in your Canadian Garden

IF SO.

SUTTON & SONS

READING - ENGLAND

can supply you with varieties that are easily raised from seed, viz.—

SUTTON'S

Asters	$2.50
Collection of 11 varieties	
Stocks, Ten-week	1.00
Collection of 5 varieties	
Primulas	2.50
Collection of 6 varieties	
Pansies	.75
Collection of 6 varieties	
Nasturtium, tall or dwarf	.50
Collection of 6 varieties	
Balsams	1.00
Collection of 6 varieties	
Zinnias	.75
Collection of 6 varieties	
Poppies, annual	1.50
Collection of 12 varieties	
Sunflowers	.50
Collection of 6 varieties	
Marigolds	.75
Collection of 6 varieties	
Godetias	.75
Collection of 6 varieties	
Clarkias	.50
Collection of 8 varieties	
Chrysanthemums, annual	.75
Collection of 9 varieties	

FLOWER SEEDS VALUE $2.50 MAILED FREE TO CANADA

Sutton & Sons
Reading, England

Mention The Horticulturist when writing

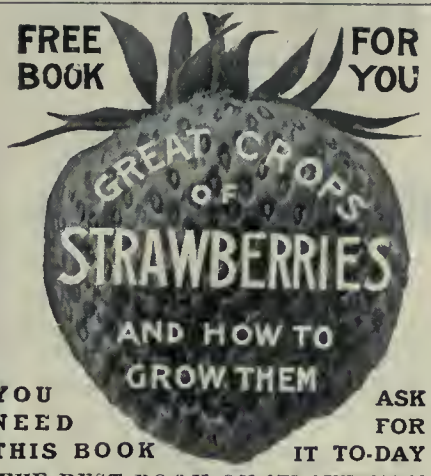
GREGORY'S SEEDS

If you have never planted them, try them this year. They never disappoint—they grow—they yield. Always sold under three guarantees, insuring freshness, purity and reliability. For this reason, thousands of farmers, gardeners and planters, both in the United States and Canada, plant Gregory's Seeds exclusively. Our new Catalog contains many suggestions and directions—the fruit of fifty years' experience in the seed business.

GREGORY'S SEED CATALOGUE FOR 1907

J. J. H. Gregory & Son
Marblehead, Mass.

FREE BOOK FOR YOU



YOU NEED THIS BOOK — ASK FOR IT TO-DAY

THE BEST BOOK ON STRAWBERRY CULTURE ever written, because it explains every detail of the work from the time plants are set out until the berries are picked, and tells how to prepare the plants for a big second crop. 125 Pictures of strawberries and strawberry fields. This book is worth its weight in gold. If we knew your address, would mail you one Free.

R. M. KELLOGG COMPANY, Box, 570 Three Rivers, Mich.

All we require is that the applicant give the number of the desired experiment, and agrees to follow the directions furnished; to properly care for the crop; and to report the result at the end of the season when requested. The seeds will be sent by mail, free of charge, in due time for spring planting. Applications will be filed in the order in which they are received until the supply becomes exhausted. Those who apply promptly will be most likely to get what is wanted.

"A circular giving full instructions for conducting the experiment, and blank forms upon which to report the results of the test, will be provided with each lot of seed. We trust your interest in this work may lead you to become a successful experimenter."

Send for our free book catalog. It will interest you. Send now

At a meeting of the Ottawa branch of the O.V.G.A., held in February, it was decided to do away with the habit of giving 13 for a dozen when selling vegetables. The move was an important one, and met with the approval of the members.

St. Catharines horticulturists are planning for a great horticultural show next year. Recently a representative delegation from the St. Catharines Hort'l Society waited on the local county council and asked for a grant of $175, which they were promised. Already plans have been made by the society that will make the show next year even better than the excellent one held last year.

Orchids Now is the time to place your orders for Spring delivery of freshly imported Orchids. **Our prices are very low, quality considered.** Also large stock of established Orchids on hand

CARILLO & BALDWIN
SECAUCUS, N.J., U.S.A.

Size in Exhibition Apples

Ed., CANADIAN HORTICULTURIST,—The point raised by Mr. McNeill in the Jan. issue of THE CANADIAN HORTICULTURIST, in reference to how much value shall be given to the size of specimens in apple exhibits, is a very important one. It is one, as he says, on which judges do not by any means agree. Yet, the tendency of late years has been strongly away from the idea that size was the all-important point, and in favor of giving color, uniformity, freedom from blemishes and quality more nearly their due consideration.

I agree most emphatically with Mr. McNeill that, when it is a choice between normal-sized specimens which are smooth and well colored, against over-large ones which are rough and lacking in color, there should not be the slightest hesitation in giving the former the preference. I find, however, in my personal experience as judge, that it is often extremely difficult to draw the line as to just where desirability in size ends and undesirability begins. Still, if we could once establish the principle, and have it generally accepted that it is quite possible to overdo the matter of size, it would certainly be a point gained; and we should then have judges endeavoring to decide on the line I have just mentioned, instead of, as it is too often the case now, assuming "the bigger, the better."

On the other hand, it should be borne in mind that the commercial value of the different points considered in judging is really the basis on which our scheme of judging rests, and that with *some* apples in *some* markets size is, if not the all-important point, at least the winning point, *other things being equal.* I have been told by some of our growers here in Nova Scotia that their "extras" (which have been merely No. 1's of extra size) always bring them the most money. With such apples as Wolf River and the like, which are used for decoration, large size would certainly add to their value.

Feed Your Land

WITH GOOD MANURE AND GET

GOOD RETURNS

MARCHMENT'S
SURE GROWTH COMPOST
—IS THE BEST—

Supplied to the Largest Nurserymen and Fruit Growers in Ontario

S. W. MARCHMENT
19 QUEEN ST. EAST, TORONTO
Telephones Main 2841 Residence Park 951

THE APRIL NUMBER
OF THE
Canadian Horticulturist
WILL BE THE LARGEST AND BEST ISSUE OF THE YEAR

Over 7,000 of our readers will be planning to purchase seeds, plants, bulbs, trees, etc. Place an advertisement in that number and tell our readers the good things you have in stock for them. Send in your copy by the 10th of March.

The Canadian Horticulturist
506-7-8 Manning Chambers
TORONTO

Another point which we should bear in mind carefully, and which might very easily be lost sight of, is that there is a great difference between considering large size an actual defect, as Mr. McNeill suggests, on the one hand, and not giving it undue weight in judging, as it is too often done now, on the other.

All things considered, I should favor Mr. McNeill's suggestion that abnormal size be considered as a defect with strictly dessert varieties of apples. I would add, that even with the ordinary "commercial" sorts, size should not be considered as outweighing color, uniformity and freedom from blemishes; but that two plates, one of which is normal size and the other above, should compete on equal terms so far as size is concerned.

If we could have these two accepted as general principles, the exceptions that I have alluded to above could be, I think, easily managed. For it would only be with a very few varieties that abnormal size would be, or should be, considered an actual asset.

This whole discussion, however, only emphasizes the fact that we ought to have a different score-card—or, if we do not use a score-card, a different ideal—in judging each particular variety; so that, while size would be far more important with Wolf River than with Pomme Grise, and color far more important with Spy than with Rhode Island Greening, quality would be given much more weight with McIntosh Red than with Ben Davis.—F. C. Sears, Agricultural College, Truro, N.S.

Holes in trees caused by decay may be remedied by filling with cement. Scrape away every bit of decayed wood in the hole, wash with Bordeaux mixture and fill with cement until the surface of the new bark is met.

"I congratulate you on achieving in THE CANADIAN HORTICULTURIST an unusual and rare combination, that of giving to the public high quality at a low price."—W. M. Robson, Lindsay.

The June Pink Tomato

James A. Fraser, Prescott, Ont.

We grow from 15,000 to 20,000 tomato plants for our retail trade. We generally grow about 10 kinds. Each year we try one or two new ones, and test them ourselves before offering to our customers. Last year we tried June Pink and found it satisfactory in every respect. Our land is heavy sand bordering on clay, and grew nice plants of this variety with nice large smooth tomatoes of good texture, and the best flavor of any tomato that we grow. Several gentlemen sampled them, and said that they were excellent. They gave orders for tomatoes of that kind.

The plants were not planted as early as the other varieties. We considered, however, that if planted at same time as other early varieties, they would be just as early. This year we are sowing plentifully, and intend putting them on the market as one of our earliest and best tomatoes. We do not hesitate to recommend the June Pink to growers.

At the annual meeting of the shareholders of the Hamilton, Grimsby and Beamsville Electric Railway, it was decided to extend the line to St. Catharines. Should this be done, it will make communication with the new fruit experiment station in the Niagara district a comparatively easy matter.

At the annual meeting of the Thornbury Hort'l Society, the following officers were elected: Hon. pres., Jas. Lewis; pres., H. Redwell; 1st v.-pres., Mrs. W. L. Lyson; 2nd v.-pres., Dr. Hurlburt; sec.-treas., Geo. Wright; directors, J. G. Mitchell, C. W. Hartman, R. Cook, J. B. Ferguson, Dr. Moore, R. Crews, Mrs. T. Loucks, Mrs. M. Snetsinger, and Mrs. J. M. Steel. It was decided to take THE CANADIAN HORTICULTURIST for 1907. The total receipts for the past year were $97.22, and the expenditure $75.21, leaving a balance of $22.01.

Windsor Salt

is ideal for salting butter.

Pure, clean, dry, well-savoured—it dissolves quickly—works in evenly.

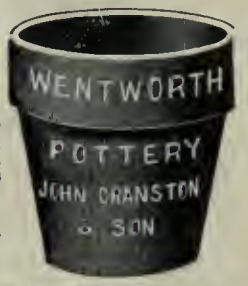
Used in prize-butter throughout Canada.

It should cost more—but is sold at the same price as other salts.

In bags and barrels. All dealers'.

118

Wentworth Pottery



Standard Flower Pots, Fern Pans, Hanging Baskets, Cut Flower Jars and all Florists' Supplies.

Mail orders given prompt attention.

JOHN CRANSTON & SON, Hamilton, Can.

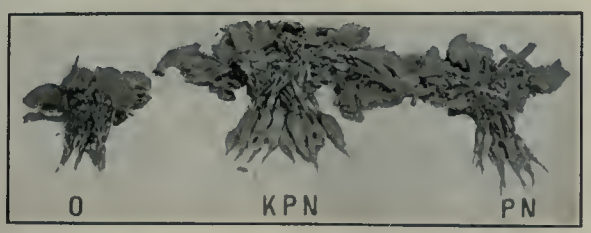
Mention The Canadian Florist.

POTASH

for FIELD, GARDEN, ORCHARD

POTASH promotes maturity and counteracts the effect of an excess of nitrogen in the soil produced by a too heavy application of farmyard manure or from other causes. POTASH is a direct plant food and is indispensable.

Fertilizer Experiment on Radishes by Otto Herold, Waterloo, Ont., 1906



Treatment: Unfertilized	With Potash	Without Potash
Result: Non-saleable	$200.00	$20.00 per acre realized

POTASH in the highly concentrated forms of Muriate of Potash and Sulphate of Potash is obtainable of all leading Fertilizer Dealers. Pamphlets treating of the cultivation and fertilization of all farm crops will be sent free on application.

The Dominion Agricultural Offices of the Potash Syndicate

1102, 1105 TEMPLE BUILDING, TORONTO

Mention The Canadian Horticulturist when writing

UNDERWOOD

Ten years ago the Underwood introduced visible-writing. It was termed by other typewriter manufacturers a fad. Since that time 15 new makes of typewriters have appeared. 13 of them have imitated as closely as possible the Underwood, and have sought recognition on the score of visible-writing.

The Underwood is not an experimental imitation. It has proved its worth to over 200,000 satisfied users. 90% of the typewriters sold in Canada are Underwoods.

United Typewriter Co.

Limited

ADELAIDE STREET EAST, TORONTO

AND IN ALL THE PRINCIPAL CITIES

Mention The Canadian Horticulturist when writing.

ABUNDANT CROPS OF HIGH QUALITY FOLLOW THE USE OF

Tobique Plaster
OR GYPSUM

ALL KINDS OF LAND REQUIRE THIS FERTILIZER

Fruit Growers—Flower Growers and Vegetable Growers

SHOULD USE TOBIQUE PLASTER

SPREAD IT ON YOUR LAWN OR GARDEN
THOUSANDS OF TESTIMONIALS FROM USERS

R. C. Mosher, Manager, Plaster Rock, N.B.

WESTERN AGENT
THE F. G. TERRY CO., 31-41 GEORGE ST.
TORONTO, ONTARIO

Mention The Canadian Horticulturist when writing

Order at Once

WE ARE BUSY—SEND FOR CIRCULARS

Mention The Canadian Horticulturist when writing

THE PHOTO-ENGRAVERS LIMITED.

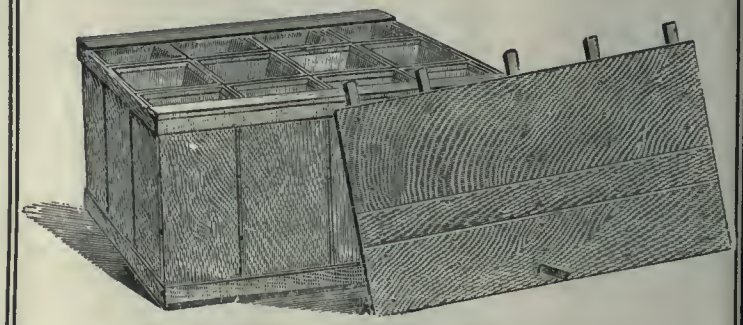
DESIGNERS ILLUSTRATORS
ENGRAVERS AND ETCHERS

10 JOHNSTON LANE
TORONTO PHONE MAIN 5251 ONTARIO

Mention The Canadian Horticulturist when writing

BASKETS

We are Headquarters for all kinds of Splint Baskets



Veneer supplied for the protection of trees from mice during winter

FRUIT PACKAGES A SPECIALTY

SEND FOR OUR PRICES
The Oakville Basket Co. - Oakville, Ont.

Mention The Canadian Horticulturist when writing

A Nice Premium will be given Free to all Readers who Buy Goods from Advertisers.

The Canadian Horticulturist

Vol. XXX APRIL, 1907 No. 4

Selecting and Planting Fruit Trees

G. Reynaud, La Trappe, Quebec

GREAT care and attention are required in the choice of varieties of the fruit we wish to grow. Avoid, first, varieties which cannot become acclimated; second, varieties that are unprofitable; and third, any inferior variety.

Regarding the first it is clear that the trees must be able to stand the cold of our winters. Buy the plants from reliable nurseries situated in Canada that sell only what they have grown themselves. One is then sure of having acclimated plants. Regarding the second, there are some varieties which enjoy a striking fertility; others, while giving fine fruits, are of little or late bearing These are less advantageous. Regarding the last, by inferior qualities we must understand fruits poorly adapted to the intended trade, which sometimes is the only practicable trade. For instance, far from trade centres, the summer varieties are of no benefit because they do not keep, and the time for selling is very short. In this case, plant winter fruit, and especially those most in demand in the market. If a large business centre is near by, the earliest bearing varieties pay the best. The sale of early fruits, of *primeurs*, even if they are not quite ripe, always brings forth a sure profit.

When there is danger of making a costly mistake ask advice from some expert in the matter. The provincial and federal governments have established in several places experimental fruit stations precisely with the view of studying the values of the different varieties. There, may be found, at any time, exactd disinterested information.

Short trunk trees stand the wind better and facilitate the accumulation of snow, so necessary to protect the roots against late colds; but they present the serious inconvenience of rendering cultivation excessively difficult. It is better to buy medium-sized trees. Young plants with five or five and a half foot trunks are high enough to possess all the advantages of any other kind, without the inconveniences.

PLANTING

If everything is not ready for planting when the plants come from the nursery, they must be placed slightly inclined, one by one, in a trench with the roots covered with earth. When ready to plant the plants can be distributed one by one in the holes, but the roots must not be left uncovered, because they suffer from exposure. Place with the roots at the bottom of the hole and cover with two or three shovelfuls of earth.

When trees are sent from the nurseries during periods of extreme cold, the box or package should be wrapped and placed in a cool cellar for a few days, where the trees will slowly regain their normal temperature.

Advanced Wonderfully

THE CANADIAN HORTICULTURIST has advanced wonderfully in the last two years. I believe that it is the uniform opinion of the fruit growers of the province that the paper is the best fruit growers' paper now published, and that there is no longer any necessity for going to the United States for such a publication.—P. W. Hodgetts, secretary Ontario Fruit Growers' Association, Toronto.

Planting must be done in dry weather so that the soil will fill in all the space between the roots. Before putting the trees in the ground they must be pruned, which consists in cutting sharply all the wilted extremities of the roots, and shortening at least by half the branches at the head. This is necessary to give the tree a systematic shape and robust growth. Throw enough earth, mixed with matured and good fertilizer into the hole so that the tree will stand in the ground at about the same height as in the nursery. Place the tree and arrange the roots in their natural position, then cover with more good soil and slightly pack it down. When the roots are completely covered, fill with the surface soil.

CARE FOLLOWING PLANTING

The wind in shaking the young trees sometimes prevents them from taking root. The remedy for this is props. These are placed at the time of planting before the holes are filled up, on account of the danger of breaking the roots if put in later. The trees are bound to these by means of strips of cloth or some linden bark fibre.

The bark of a young tree changes a part of the sap into a wood-making substance, called "cambium," which becomes an integral part of the fibrous body of the trunk and adds to the growth of the roots. It is, then, important to keep the bark in good shape to prevent it from drying and to stop any foreign growth on its surface. To obtain this it is useful during August to wash the bark of the young trees with water in which are dissolved a little soap and some phenic or carbolic acid. This saves the trees from the ravages of insects.

If the planting season is dry, water the trees often, but only a little at a time. In rapidly drying ground, loose soil on the surface will retain moisture.

In the fall, do something to protect the young trees from late spring frosts, on account of the extreme sensitiveness caused by the small extent of their radiculary system. One way of doing this is to pile up earth around each tree to about one and a half feet in height; another, to throw in the same place and after the first permanent snow, some strong manure. This manure will prevent the snow from melting rapidly; it creates in the soil at the foot of the tree a constant and regular coolness which keeps back vegetation and saves the young plant from the dangerous results of frost and thaw. Remove the earth or manure as soon as danger is passed.

One must abstain from pruning young trees during their first year in their new place. It would stop the growth of fresh roots and result in the death of the tree; or, if it lived, through it would cause in the tree an excessive sensitiveness to the inclemency of the weather. Notwithstanding, all branches grown on parts of the tree where they are useless ought to be cut off in the fall. In cases where it is feared that snow might break the branches, they should be bound to the aforementioned props.

The Growing of European Plums

Cecil C. Pellit, Fruitland, Ontario

FOR the last few years, the growing of plums at a profit to the grower has been a rather difficult problem. It has been an even chance that, if everything were taken into consideration and all expenses reckoned up, the grower would have been out of pocket. Of course, there has been an exceptional year now and then but, on the whole, the plum business of the last few years has been a financial failure.

Those who were fortunate enough to have a crop in the season of 1906 made good money. Plums were in demand and brought good prices. Some orchards paid at the rate of $500 an acre.

The outlook for the future seems to be brighter. I am inclined to believe that the growing of plums will be a paying business. There are several reasons that have led to these conclusions. The West is rapidly filling up and that market must be supplied. Other markets also are opening. We are getting better transportation facilities. The canning industry is developing year by year, and this furnishes a market for large quantities of plums.

Another reason that can be given is that the area for plum growing seems to be getting more limited. The time was when plums could be grown successfully in almost any part of the country, but a few cold winters played havoc with thousands of trees in a great many districts and growers have neglected to replant for fear that the same thing might occur again. The great damage and destruction caused by the San Jose scale has played quite a part in reducing the acreage that has in former years been devoted to plum growing. Thus the area has been largely reduced.

These and other reasons that might be given lead us to the conclusion that the growing of plums, for some time to come, will be far more profitable than it has been in recent years. In passing, let me say that, for profit, there is no comparison to be made between European and Japanese plums. Most growers would be far better off had they never seen a Japanese plum tree.

SELECTING SOIL AND TREES

Plums can be grown on almost any kind of soil that is properly drained, but the heavier soils are preferable. I would advise any one contemplating the planting of a plum orchard to plant it on their heavy soil, and save their lighter soils for something else.

Good, thrifty, two-year-old trees should be selected, and, in no case, plant a tree over two years old. Rather than take them over two years old, take good, strong, one-year-old trees.

Plum growers have been seriously handicapped by getting trees from the nursery that have not been true to name, oftentimes growing them for five or six years and then finding out that they have got a lot of trees that are fit only for firewood. It makes pretty expensive firewood. If nurserymen would be careful only to bud their young stock with buds taken from bearing trees, then they would know that their stock would prove true to name. The planters would be sure of getting what they ordered and paid for. Nearly all nurserymen take the buds from their nursery rows, from trees that never have fruited, and, consequently, in sending out young trees very often the varieties get mixed.

PLANTING

The ground should be thoroughly worked. The trees should be planted not less than 16 feet apart each way; in fact, some varieties would be better if they were planted 18 feet. Planters in the past have made the serious mistake of planting their trees too closely together. When we work around and spray among them we see our mistake.

Do not plant too many varieties. I would name the following kinds to select from: Bradshaw, Washington, Imperial, Gage, Yellow Egg, Lombard, Moore's Arctic, Monarch, Canada Orleans, Quackenboss, Pond's Seedling, Reine Claude, Grand Duke, and Shropshire Damson.

After the young orchard is planted, thorough cultivation should be given. It stimulates good hardy growth. In late summer sow a cover crop for protection to hold the snow and to improve the texture of the soil. This should be plowed down in the following spring. Some growers grow some kind of a hoe crop between their young trees. That is a matter of opinion and, of course, depends somewhat on the fertility of the soil. I, personally, prefer the former plan.

SPRAYING AND PRUNING

Spraying should be done from the first. Nothing helps trees to retain their foliage like Bordeaux, and it also keeps the trees clean and free from disease. When the trees get older and begin to bear fruit, spraying should be done more thoroughly and systematically. How often it should be done in a season depends on local conditions, and the amount of rot to be combatted.

Judicious pruning should not be neglected in a plum orchard, but we fear it very often is. Good, thorough pruning has a great deal to do with the quality of fruit grown.

Something might be said about the picking, packing and marketing of the fruit; but, we feel that this article is already too long. I will leave that feature of our subject for another paper, especially that part of it that relates to the putting of fruit that is too green on the market.

The Gooseberry

Stanley Spellette, Nantyr, Ont.

For some years previous to last year gooseberries, when mature, commenced dropping off the bush till not a berry was left. It was proved here and at Guelph that this falling is caused by the presence of a little maggot in the berry. The eggs which produce the grubs are deposited in the berry when young by a small moth. Last year, the first for years, about 50 per cent. came to maturity and ripened. So I am in hopes that the scourge is passing. One season I thought that I could prevent the moth laying her eggs by keeping the bush sprayed with liver of sulphur, but it did no good.

The gooseberry will thrive and yield large crops upon almost any soil that is enriched with plenty of manure. A heavy clay loam well manured would be perfection, especially for the American varieties. Before a plot is set to plants it should be fallowed and made rich. Set native varieties six feet apart each way.

Mulching gives grand results in a dry year; but for a wet season I prefer cultivation. Care must be taken for a few weeks, just as the fruit is forming, not to go too deep under and about the bush, especially if the weather is dry. I lost three crops in this way before I detected the cause.

Native varieties do not need much pruning for three years. Keep the top open, and if a branch is to be cut, cut it close to the stem. Allow six or eight stems to grow. As soon as a branch grows dark-colored and hidebound, and the fruit commences to run small, cut it away and allow a sucker to take its place. Fall is the best time to prune, but the young suckers, except those needed for renewal, should be cut away as soon as they are a few inches high.

After testing 60 foreign varieties, I am convinced that none of them is an improvement upon our own Red Jacket, Pearl or Downing. Foreign varieties have nothing to recommend them but size. Their thick skin is disagreeable if they are allowed to ripen or nearly ripen before being cooked. Red Jacket and Pearl are large enough for all practical purposes; in fact, they are as large as many of the English varieties tested.

The presence of large numbers of robins on a lawn is an indication of the presence of white grubs in the sod.

The Importance of Careful and Thorough Spraying

R. W. Starr, Wolfville, Nova Scotia

As the time for spraying is near at hand, perhaps it may not be out of the way to urge on orchardists the importance of early and careful work in this department. It is well that every man should study his own especial wants in this matter. He should know by the past year's observation what variety of insect pest will be most likely to trouble him during the coming season, and be prepared to attack them at the most vulnerable time in their life cycle, not allowing them to get so far ahead as to damage either foliage or fruit, or get so strong as to be difficult to destroy. It will be time well spent if the orchardist will devote some careful study to the life-history of the insects that are troubling him, so that he may take the best means and the proper season to attack and destroy them.

Then we must combat those fungous diseases which have been so destructive to most varieties of fruits during the past two years. These can only be kept under control by careful and continuous spraying with the Bordeaux mixture, or some other preparation of copper carbonate, and at the same time by closely watching the climatic conditions It is well known that warm, cloudy or foggy weather is a strong incentive to the propagation and growth of fungous spores, and that under such conditions, our precautions should be redoubled.

Spraying in a Nova Scotia Orchard

This cut and the one on the front cover of this issue illustrate a power sprayer at work in the orchard of Mr. W. M. Black, Wolfville, N.S. Note the low trucks.

No matter what the nature of the season, from the commencement of growth until midsummer, we must be prepared to "watch and work," not only to control the insect pests that we can see, but the far more insidious and dangerous fungous diseases of both fruit and foliage, the commencement of which we cannot see, but with results plainly evident.

If it were possible to have every fruit tree, in every orchard, carefully and thoroughly sprayed from the ground upward, and all diseased leaves and fruit lying on the ground destroyed, or covered with earth, before or just as the growth of the spores had commenced, we might have some hope of stamping out several of the worst of those pests. This is hopeless, however, unless we get perfect cooperation over a large section of country.

There is an old, frequently quoted adage that will apply to this operation of spraying very forcibly: "That which is worth doing is worth doing well." There is no work on the farm or orchard that requires more care, skill, and closer attention to details than the preparation, straining, and final mixing of spraying solutions in the cask or tank, ready for application, also keeping pump, agitator, hose, extension rods, nozzles, and so forth, in perfect condition all the time, so that the work may be well and economically done without loss of time or waste of material. It matters not whether the hand pump or the power sprayer is used, the same care and close supervision of the work and the same attention to detail is necessary.

MANNER OF SPRAYING

We must have force enough behind the pump to drive the liquid through the nozzles in the finest possible spray. A spray that will float in the air like a

A Sprayer at Work in the Orchard of R. S. Eaton, Kentville

thick fog is the ideal. With such a spray and careful manipulation of extension rods, we may cover every twig and leaf of a tree with the minimum amount of material and find our work more effective than if done with a coarse nozzle, sprinkling raindrops on the trees, leaving them dripping, but only half covered, and using twice the material.

In this way much of the work is only half done, and material is wasted by carelessness and want of skill, not only by common laborers who have not been taught to put "brains into their work," but by men who ought to know better, and who rush through what they consider a dirty, disagreeable job to get rid of it as soon as possible. Then they will tell you that they sprayed their trees once or twice, as the case may be, but did not receive much benefit from it and don't think that it is worth the time, trouble and expense. Under those circumstances they may be correct. Had they been more thorough in their work they might arrive at different conclusions.

For further information regarding the details necessary to successful spraying, I refer persons who desire same to the bulletins on spraying issued at Ottawa, Truro, Guelph, Cornell, Geneva and other stations.

Insects of all sorts are increasing year by year. If you have not observed any damage from them, on close examination you will find many kinds and species that you had no idea were infesting your trees. It is a simple matter of precaution, for insurance, therefore, to use arsenical poisons with the Bordeaux, in the proper proportions at the proper season. Spray early, spray often, and above all, spray thoroughly and carefully.

The Red June Plum Tree

Ralph S. Eaton, Kentville, Nova Scotia

Red June plum trees have fruited satisfactorily in Nova Scotia and the quality of the plums for dessert is good. In some seasons the leaves of the variety have been particularly subject to shot-hole fungus or a disease having similar effect. The leaves, after perforation at midsummer, would turn brown and drop and the fruit would soon follow.

The tree is a rapid grower. The long, slender, brittle wood, if allowed to grow all the season, should be cut back one-half. Nipping off the end of the growing wood in July would be preferable in order to save wood production and to induce fruit bud formation. The writer aims to do this with all fillers. After the third year, a little judicious thinning is desirable. The tree naturally forms a fine, round, spreading head. The fruit is handsome but must be severely thinned to secure good dessert size. If the foliage could be kept on during the summer, it would be a very profitable variety.

Varieties for the North

G. C. Caston, Craighurst, Ontario

FOR a commercial apple orchard plant Duchess. With the demand in the west for early apples, the improved facilities for shipping in the way of refrigerator cars well iced, and icing stations on the way, these apples can be laid down in first-class condition in that market; they are such prolific bearers and such excellent cookers, they are not likely to go to waste for want of a market in future. They grow to a high state of perfection here. The climate conditions seem to be just right.

In fall apples next in rotation after Duchess, the Peerless and Alexander. The former is little known as yet, but it is a good variety. I would not discard the old Calvert; it will always be a good shipping fall apple. My chief favorite is the Wolf River. It is one of the very best cooking apples. Its early and abundant bearing qualities, fine size and rich coloring places it in the front rank as a commercial fall apple. In the late fall varieties, or what we might call Christmas apples, Snow and McIntosh do fairly well here; but, unless people will spray them properly, they are not profitable, as a large percentage are unmarketable. The best substitute for these is the Shiawasee. It does famously here and is just about as good as either of the others in quality. The Baxter does very well here, except that, like the Snow, it is very subject to scab.

Of the late winter varieties, the Spy leads. We cannot have too many of them; if three-fourths of the orchard were Spys, it would be all the better. Spy, Baldwin, R.I. Greening, and King must be top-grafted on hardy stock. I don't think as much of Ontario now as I did a few years ago; it has not fulfilled expectations. The Seek-no-further Stark, Pewaukee, Gano, Salome, and Boiken are all good winter sorts here. That makes the list long enough. Do not plant too many varieties. Intending planters should bear this in mind. A commercial orchard should be confined to a few of only the best varieties.

We are out of the plum belt here, and it won't pay anyone to try to grow them. They succeed best near large bodies of water, and a few miles away from the Great Lakes they will not succeed. Practically the same may be said of cherries. The hardiest plum of the European varieties, of about 40 tested here, is the Staunton. It is still thriving while all the rest are dead. The best of the Japans is the Burbank. The American varieties are not worth growing. The best cherries are Orel 24, Osthiem, Richmond and Montmorency. In pears, Flemish Beauty, Clapp's and Anjou seem to be quite hardy, and Bartlett does well top-grafted on Flemish Beauty.

The best blackberries are Agawam and Eldorado, although both of these have suffered damage in very severe winters. In raspberries, Marlboro and Cuthbert have been the main varieties. There is not much to commend the Marlboro except its earliness. The Cuthbert, while of best quality, is not quite hardy enough here. If we can get one of as good quality and perfectly hardy, it would fill the bill. I have a new variety, called the Eaton, from Michigan. It is a magnificent berry; if it proves hardy it will be an acquisition.

I have tried a great many varieties of strawberries, and my experience is that the old varieties I first started with, the old Wilson and Crescent, are the best I ever grew. But they are run out now. The Wilson rusted so badly it had to be discarded; although in its best days it did not show much signs of rust, the last few years I had it, the rust developed greatly. Crescent is doing fairly well yet in some localities. Among new varieties one that has a strain of Crescent in it is most likely to excel in public favor. I have tested a number of seedlings of my own, and I have one which I believe to be a cross between Crescent and Williams. I have fruited it for two years, and have decided to propagate it for my own use, but will reserve opinion until it has had a few years further trial.

Strawberry Varieties

W. F. W. Fisher, Burlington, Ont.

The choice of varieties depends largely on local conditions, and on the object for which the fruit is to be grown, whether for home market or for long distance shipping. Many growers fall into the error of needlessly multiplying the number of varieties. It is best to choose judiciously and keep the number for a commercial plantation down to two or three. A new and profitable demand will be created as soon as large plantations of single varieties of the right sort are offered to buyers.

The plants should be taken from well-wintered young beds. All weak ones should be discarded. Trim off the runners and dead leaves, lay the plants straight in a carrying basket, sprinkle well with water and cover to exclude air. They are then ready for the field. Plant as soon as possible after digging.

THE CANADIAN HORTICULTURIST is a credit to the publishers. The cuts are well done and the matter of great interest to all lovers of fruits and flowers.—The Toronto *World*.

The Best New Varieties of Strawberries

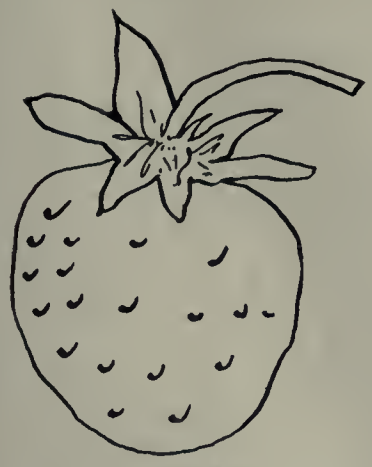
E. B. Stevenson, Ponsonby, Ontario

LAST season was one of large berries and good prices. The strawberry flourished. Some varieties are especially responsive to conditions, Sample and Dunlap particularly so. On narrow rows and on light soil, they ripen almost as early as Success or Clyde; while on heavier soil and in wide matted rows, their season is almost as late as Gaudy.

For fancy berries for the market, Kitty Rice, Minute Man, Mead, Auto

Auto

and President seem to be almost perfect; good growers; good yielders; perfect in form, regular; good color, with a shine on them; firm and fair quality. Among the best late varieties is Commonwealth, which ripens about with Gaudy. It is as large and fine as any, and very firm. Cardinal is without doubt one of the best late sorts. The plant is all that could be desired; fruit stalk is large and strong,



Cardinal

holding the fruit up well; berry, large, glossy, easy to pick, one of the firmest and will carry well. Among the very new ones the best are as follows:

Three W's was a wonder for productiveness last year, ahead of everything. The blossom is perfect. At one of the pickings, I picked three boxes of berries without moving; at a later picking, I picked a box for every two feet of row. The plant is large, healthy, a vigorous grower. The berry is large, conical, blunt at the end, fine bright dark scarlet; seeds, yellow; good mild flavor; medium in firmness, but the skin seems to be tough, would rather dry up than rot when kept after picking. I judge from this that it would carry any distance. The size of the berries is uniform, few or no small ones.

Three W's

Mead is another new one that made a great showing of large, handsome berries. The blossom is perfect. It is a fine grower. The plant is strong and healthy, not a trace of rust, and is quite productive. The berry is large, roundish, coloring evenly, firm and good quality. This is a fine variety, and well worth a trial by all growers.

Uncle Sam, perfect blossom, was one of the best in last season's test. The plant is large, strong, healthy, a good runner and productive. The berry is large to very large, if not the largest, fully as large as the largest Clyde or Bubach, roundish in form, scarlet in color with yellow seeds; flesh pink, good quality and flavor, medium in firmness. This variety is worth a trial as a fancy berry for a fancy market.

Reynolds, perfect blossom, originated in Delaware. The plant is large, with thick, leathery dark green foliage, free from rust, a good grower, making plants freely and productive. The berry is large, dark scarlet with yellow seeds; flesh, red to centre, fair quality; a good one.

Minute Man, imperfect blossom, proved itself to be one of the best market varieties. The plant is healthy, a strong grower, and quite productive. The berry is large, roundish-conical, crimson, with yellow seeds; flesh, reddish pink all through, medium in firmness, good quality.

Kitty Rice or Downing's Bride, imperfect blossom, is a healthy grower, making plants freely; it is productive. The berry is large, roundish, good color, with a gloss. For a fancy market berry, Kitty Rice seems to be about the thing. It is of fair quality, and looks well in the crate.

Latest, imperfect blossom, is healthy and strong, stools out, makes few runners, but sufficient for narrow row. The berry is large, conical, good crimson color, flesh red, plant quite productive, good quality and firm. One of the latest and a good one.

Elma, imperfect blossom, is a strong and healthy grower; plant, productive; berry, large to very large, round in shape, bright red, medium in firmness; flesh, pink; nice spicy flavor and good quality, very late; first picking, July 1.

Early Hathaway is one of the best early varieties, perfect blossom. The plant is healthy, a good runner and productive; the berry is roundish-conical; flesh, red all through, acid, fair quality, medium to large in size, scarlet with yellow seeds.

Mellie Hubach, imperfect blossom, will prove a good market sort on ac-

Mellie Hubach

count of its productiveness and bright glossy berries of good size. The plant is healthy, a good grower, making plants freely. The berry is a bright scarlet with yellow seeds, conical, blunt at end, with a slight neck; flesh, pink and white in centre, acid but good flavor. It is an early variety and a good one.

Remedy for Peach Curl.—My remedy for peach curl is to spray the trees thoroughly before April 10, with blue vitriol solution, made of two pounds vitriol to 40 gallons water. This has always given excellent results with me.—J. L. Hilborn, Leamington, Ont.

Do Not Let Trees Go Dry Before Setting.—If not ready to plant when the stock arrives, see that it is immediately taken care of. The best way is to heel it in by packing the roots in a trench and covering them thoroughly with mellow earth well packed about them.

Varieties for Manitoba

F. W. Brodrick, Horticulturist, M.A.C., Winnipeg

UP to the present comparatively little has been done in apple growing in the west. The varieties grown are confined almost exclusively to the hardier Russian sorts. Of summer and early fall, the following varieties are recommended: Duchess of Oldenburg, well known; Charlamoff, a variety highly recommended by the Minnesota Hort'l Society for western planting, resembling Duchess, but a little later; Barovinka, another variety resembling Duchess; Blushed Calville, a variety resembling in appearance Yellow Transparent; and Teofesky is grown to some extent in the west.

Of late fall and winter varieties, Hibernal is recommended as being the best on account of its great hardiness. The trees are productive and the fruits of fair quality. Wealthy may be grown in some parts of the province, but is scarcely hardy enough for western planting. Patten's Greening, a variety recently introduced and highly recommended by Minnesota hort'l societies, is frequently mentioned. Anism and Simbriske, Nos. 1 and 9, are also recommended.

Crabapples seem to be standing western climate very well, and a number of varieties are grown. Transcendent, Hyslop, Martha, Whitney, Virginia, and Tonka grow well and give fairly good returns.

Tree planting on the plains is quite a different proposition from planting in Ontario or the east. Little can be done without first providing suitable windbreaks for protection of the trees against the cold, searching winds which sweep over the west. The form of the tree also must be greatly modified to enable it to withstand the rigorous winds which prevail in the west. The trees are headed back in order to develop a low, bushy form which seems to enable them to winter much better than where the trees are allowed to develop a wide open top.

Plum culture is attended with but a moderate amount of success. A few of the heady sorts can be grown and ripened under western conditions. The following varieties are recommended for western planting: Cheney, Aitken, Wyant, Forest Garden, Surprise, and Bicksley. The best results are obtained by growing in protected locations and by keeping the trees well headed back.

Bush fruits, such as currants, raspberries and gooseberries, may be grown with good success with ordinary cultivation and moderate winter protection. The following is a good commercial list: Red raspberries: Shipper's Pride, Loudon, Ironclad, Cuthbert, Philadelphia, Kenyon, Turner, Marlboro; black raspberries, Gregg, Older, Ohio; yellow, Golden Queen; red currants, Stewart, Cherry, Versailles, Victoria, Raby Castle, Red Dutch, Fay's Prolific; black currants, Black Beauty, Black Champion, Crandall, Black Naples; white currants, White Grape, White Dutch; gooseberries, Gothland, Houghton, Downing, Smith's Improved, Champion.

Strawberries, when given proper cultivation and careful mulching, give good returns and are one of the most profitable fruit crops that western farmers can grow. The old and well-tried varieties seem to be most in favor. The following list will give a good idea of the kinds grown: Strawberries, Sharpless, Bederwood, Crescent, Wilson, Brandy-wine, Senator Dunlop, Glen Mary, Warfield, and Haverland.

Renovating an Old Orchard

I am trying to work over and fix up an orchard. It is a comparatively young orchard, but has been neglected, neither pruned nor sprayed; hence, there are quite a number of pests infesting it. A number of trees have patches on them resembling dry whitewash. It may be a scale of some kind. These spots vary from one and a half inches to three inches long, and one and a half inches to two inches wide, mostly on the trunks. Would it be advisable to apply whale oil soap or Bordeaux mixture? I never saw an orchard where so many of the trees had spurs from one and a half inches to three inches long all along the main branches. These should be cut off should they not? They are very thick and have numerous annual rings on them. The orchard is 10 or 12 years old.—H. W. S., Lancaster, Ont.

With regard to the neglected orchard at Lancaster, I might say that one of the best ways of invigorating the trees is by pruning, so that I should advise the thorough pruning of the trees, not by the removal of many large branches —as in the colder parts of the country this is not a wise practice, as disease may set in—but thinning out the smaller branches from the outside of the tree. If possible, the sod should be broken up and the orchard put under a good state of cultivation. I fancy that the patches which are said to resemble whitewash must be due to lichens or fungous growth on the trees. I would advise giving the trees a thorough spraying early in April with a lime wash, made in the proportion of one pound of lime to a gallon of water, and sprayed on the trees from top to bottom, making two applications, the second as soon as the first becomes dry. This will have a very beneficial effect on the trees, cleaning them up in good shape. In addition to the lime-wash, the trees should be thoroughly sprayed with Bordeaux mixture and Paris green, beginning just before the flower buds open, but if the lime-wash is not used, Bordeaux mixture should be applied just as the leaf buds are breaking. Whale-oil soap need not be used unless there are aphis on the trees. Long spurs on the main branches should not be removed, as these are the ones which bear the fruit. The ring-like appearance on the spurs is quite natural on old spurs. If possible, manure should be plowed under when breaking up the sod.—Answered by W. T. Macoun, Horticulturist, C.E.F., Ottawa.

The Apple Aphis

Last year the apple aphis did much damage in my orchard. Both fruit and foliage were injured by them. I sprayed several times with Bordeaux mixture, which was not intended to affect the aphis but to keep diseases in check. Please tell me how best to combat this pest?—H. B. S., Shediac, N.B.

This pest has been very abundant in New Brunswick and Nova Scotia orchards for the past two years, and is capable of doing much injury by sucking the juices from the young buds and the leaves. There are three effective remedies: (1) Tobacco and soap wash, made by dissolving two pounds whale-oil soap, or four pounds ordinary soap, in two or three gallons of a strong decoction of tobacco stems or leaves, and adding water to make 50 or 60 gallons. (2) Whale-oil soap solution, one pound to six gallons of water. (3) Kerosene emulsion solution, prepared by dissolving half a pound soap in a gallon of hot water, then adding two gallons coal oil and churning violently until a thorough creamy emulsion is obtained. In the application use one part of this emulsion to 12 parts of water. It is advisable that the first application, by spraying, should be made just as the buds are opening, and the second and third applications at intervals of two or three weeks.—Answered by Prof. W. Lochhead, Macdonald College.

Transplanting Currants

Is it advisable to transplant currant bushes? —S. H. M., Montreal.

Currant bushes are hardy and bear transplanting well. It is not profitable or advisable, howeve , to transplant old bushes or those that are overgrown. If your bushes are comparatively small or have been kept regularly pruned, they may be transplanted easily and without danger. When doing so, have the holes that are to receive them prepared in advance and see that the roots on removal are covered with wet sacking or other material to keep them moist and not exposed to the wind. Should the bushes be beyond their prime, it would be better to take cuttings of the young growth and propagate new bushes.

Pruning in early spring, before growth begins, induces wood growth.

Shrivelled trees may be made plump before planting by burying tops and all in earth for several days.

The First Flowers of Spring

Roderick Cameron, Niagara Falls, Ont.

ONE of the first plants that bloom in spring is the Christmas Rose, *Heliborus Niger*, probably named Christmas Rose from the fact that it blooms in the south of England about

White Rock Cress

Christmas. In Queen Victoria Park, Niagara Falls, last year, the plant was in bloom from November to April.

Another plant that blooms here in the month of April is *Daphne Mezereum*. This is a shrub that grows to five feet high and flowers before the leaves appear. It bears many violet-purple flowers, on brown, erect stems. The fragrance of these flowers is exquisite during the morning and evening. Many passers-by enquire where the fragrance comes from. *Daphne Mezereum* is a rare wildling in Ontario and even in America, but on the Dufferin Islands, in the Niagara river, it grows as underbrush. During the fall, it is covered with showy scarlet fruit about the size of peas. There is a variety of the same that produces white flowers and fruit; otherwise, they are similar. Both of these shrubs should be hardy in many parts of Ontario, particularly if grown from the seed. Another of this type is *Daphne Cneorum*, a dwarf, spreading, evergreen shrub, called by some "The Garland Flower." This is a choice subject growing by itself, or as a border to a bed of shrubbery. It produces flowers in abundance of a light lilac color during spring and fall, and fills the air with a most delicious fragrance.

Hepatica tribola and *Hepatica acutiloba* are native plants, better known by the name "Liver Leaf." They bear beautiful, deep blue flowers. They well deserve employment, particularly in well-shaded spots in the rockwork. Their leaves are evergreen. These plants are the first to bloom in the open.

The common crocuses and the snowdrops are well known to all lovers of flowers. They are among the first plants to bloom, starting early in April.

Among the first to bloom in the open is the English Daisy, *Bellis perennis*. It is as common as the dandelion in the grass in the park. The next plant to bloom with us is the sweet purple English violet.

The foregoing are all the plants that bloom here during April, but May produces new-born flowers every day. I go around my beds and borders every evening to see and admire the new-born faces that seem to smile at me. It is needless to say that I smile in return I am so glad to see them, and to know that they have pulled through the winter so well. But it is a very difficult task to remember their proper names.

Cowslip, *Primula officinalis*, is a plant seldom seen in gardens; yet, its beauty and associations naturally make it valuable. It seems to stand our cold

Purple Rock Cress

winters and hot summers well. It is supposed to be the parent of the majority of our varieties of Polyanthus.

Farther north, where it would not be safe to plant greenhouse plants in beds before the middle of June, primrose, polyanthus and cowslip are grand subjects to plant in the beds in the fall to bloom in the spring, as they would be done blooming before the beds are required for the greenhouse stock. The primula is none the worse of being divided and transplanted. It is excellent for growing in out-of-the-way places during summer, and again planted into beds in the fall to bloom again the following spring. Such beds are much more beautiful and valuable than gaudy tulip beds, the bulbs for which have to be bought every fall. The plants should be hardy in many parts of Ontario. The flowers might require a little protection sometimes, when there was a likelihood of frost. The primula is to England and Scotland what the gentian is to the Alps, the sweetest and most-sought-after flower.

During May and the fore part of June, White Rock Cress, *Arabis albida*, and its double form play a very prominent part. They are the brightest gems in the garden. If a border or edging is made of them, it will be found that the season of bloom is very much lengthened by planting the single and double turn about in a row, as the one is done when the other begins to bloom. After both are done blooming, they may be trimmed back short, and sweet alyssum may be planted between the plants of Arabis to keep up the display of white for the rest of the season. Arabis makes a grand rock plant; the accompanying photograph will show how well it is suited for this purpose.

Purple Rock Cress, *Aubretia Hendersoni*, is in bloom at the same time as the white, and makes a grand show of purple. With the exception of the color, the plants are very similar. This is also a grand rock plant.

Adonis davourica flore pleno is a rare and beautiful low-growing plant, very hardy, producing double flowers three inches across, green and yellow in color. The plant has finely cut leaves. It grows 15 inches high and is a gem for the rockwork.

Barrenwort, *Epimedium alpinum*, is a dainty plant, growing 18 inches high. The foliage is neat and almost evergreen. It produces airy clusters of purplish and yellow flowers of quaint shape. A good place for it is among the rocks or in a clump by itself, where it could be seen to better advantage and its charms protected.

Leopard's Bane

A plant that is not often seen is Noble Tumitory, *Corydalis noblis*. This is one of the finest ornamental herbaceous plants. The flowers appear in large heads on large, strong stems, and are of a rich, yellow color. The plant dies down to the ground soon after flowering. It is a native of Siberia, consequently

very hardy everywhere. It grows to a height of two feet.

Virginia Cowslip, *Mertensia Virginica*, is one of the best perennial plants in the garden. It is like the corydalis, disappearing soon after blooming. Such plants should be kept staked to mark the place where they will appear the following season. This plant grows two feet high, producing beautiful sky-blue flowers that are always admired by every passer-by.

Leopard's Bane, *Doronicium excelsum*, grows to a height of two feet and produces yellow, sunflower-like blooms on long stems which are very good for cutting. It is a very free-blooming plant and makes a grand display in the border.

Shade Trees for Our Cities*

Prof. D. P. Penhallow, McGill University, Montreal

THE question of shade trees for our cities and towns, is a many-sided one, which has engaged the most careful consideration from a very early period in our history. Shade trees, as well as properly kept shrubs and flower beds, exert a powerful reflex influence upon those who are habitually associated with them in their daily lives. From this point of view it is therefore not difficult to determine that the extent to which trees are cultivated, and *the intelligence expended in properly caring for them*, may be safely adopted as an index of the relative progressiveness, culture and civilization of a town.

In discussing the relation of shade trees to purposes of street ornamentation, there are three factors of leading importance which should be taken into consideration: Their productive value; their esthetic value; and their educational value. The popular notion that trees have a tendency to reduce the actual temperature of the surrounding air, has a slight basis of fact in a dense forest, but in the case of individual trees, their influence in this respect is so small as to be wholly unrecognizable; nor is it more conceivable that the thousands of trees which might be scattered throughout a large city, would exercise any more appreciable effect. Having thus eliminated what at first sight might reasonably be expected from the growth of trees, it is pertinent to ask in what respects they are protective? Trees constitute an active medium for the transfer of water from the soil to the atmosphere through their foliage, and the amount of water which may be translocated in this way, is very large during the period of active growth. There is therefore a constant tendency to maintain the atmosphere in a condition of desirable humidity, and though this effect is rapidly offset by the distributing influence of air currents, it is nevertheless sensible, and in this respect the presence of large masses of foliage is a desirable factor which tends to the amelioration of otherwise severe conditions.

Active foliage demands large supplies of carbon-dioxide gas which it draws from the surrounding air and rapidly converts into organic bodies, these latter being subsequently utilized in building up the fabric of the plant body. In return, the plant yields up a corresponding volume of free oxygen, and the surrounding air is purified to that extent. In large cities, especially where there are extensive manufacturing interests as in Montreal, there is a tendency towards the local accumulation of the noxious products of combustion of which carbon-dioxide is the most important, and there can be no doubt that the presence of trees in large numbers exerts a most salutary effect by virtue of their absorption of this gas and the substitution of pure oxygen. It may reasonably be contended from these statements, that a city which is abundantly supplied with shade trees will, in general, be distinguished by the greater purity and more bracing quality of its atmosphere, and it would seem to me that the relations thus developed, are too often overlooked or even ignored in considering the part which trees play in urban life.

There is another respect in which trees manifest their protective influence, as found in the extent to which they minimize the effects of excessive heat. Any one passing from a narrow and crowded business street devoid of trees, to a residential street provided with shade trees, becomes sensible of a gratifying difference in temperature. This difference is not altogether dependent upon the relative height and the crowded character of the buildings, though it is a large factor; but it is due, in the main, to the influence of the trees themselves. The trees not only give the pedestrian direct protection from the rays of the sun, but they so shield the pavements and buildings as to prevent the absorption and reflection of heat, affording to the buildings in particular, such a degree of protection as to give to the inhabitants a sense of refreshing comfort.

Of the esthetic and educational value of trees, much might be said, but it may be sufficient to point out that to bring up children habituated to association with those forms of vegetation which typify great beauty and grace

Shade Trees Such as These Increase the Value of the Residences

*Extracts from an article published in the *Canadian Municipal Journal.*

of form; which represent the embodiment of plastic strength and great virility, is to insensibly shape their moral natures in such ways as to develop character and self-reliance, as well as an appreciation of those more gentle graces which contribute so largely to the characteristic qualities of the cultured and refined. Nor can we doubt that an abundance of well-cared-for shade trees operate as an attraction to visitors and as an actual incentive to settlement. The naturally fine shade trees of Montreal constitute one of the features most commented upon by strangers, and it is the same feature which lends such charm to Toronto, New Haven, Washington, Buffalo, Detroit, and many other cities.

Turning our attention briefly to more practical considerations, it is obvious that it is the part of a wise civic policy to see to it that a form of property which possesses so many potentialities for good; which possesses so large a measure of intrinsic value; which constantly enhances in value with increasing age through a long period of time; and which also involves a considerable initial expenditure, should be most carefully protected, not only against the far too numerous enemies which Nature herself has provided, but against man himself as the very worst of all the foes with which shade trees must contend. The fact that Massachusetts has expended vast sums of money in its efforts to protect its shade trees against the ravages of insect pests; and that in spite of repeated failures, they still persist in the fight and continue to spend large sums of money annually, with a feeling of confidence in ultimate victory, is at once a tribute to the enlightenment of a community which finds it desirable to put forth such heroic efforts, and a practical proof of the wisdom of such a policy of protection, even though it involve the expenditure of millions of dollars of public money.

Abundant experience has shown that it is not alone a policy which shall deal with the pests when they arrive, that is wanted, but quite as much a policy of prevention which, ever alert, anticipates the coming evil and adopts such measures as will render its further operations ineffective. If all this may be said with respect to remedial and protective measures where natural enemies are concerned, it is certainly a penny-wise and pound-foolish policy which will expend thousands of dollars upon the destruction of insects and other natural foes, and at the same time permit man to operate in such ways as to be quite as, if not far more speedily and far more certainly, destructive. Since the introduction of telegraph, telephone and electric lighting wires throughout all the thoroughfares of our cities, shade trees have ceased to have any recognized status. A tree which has developed a fine form through the growth of half a century is suddenly deprived of its top or other essential parts and left a maimed and shattered wreck whose mutilated stumps of former members reach up their ragged ends as if in mute appeal for vengeance upon the vandals who have been guilty of such an outrage. The case is somewhat aggravated when an enterprising citizen plants a fine tree, perhaps at considerable expense, and watches with fondest care its gradual development into an object of beauty and utility. Some day he arrives home from his office to find only a wreck of that in which he has taken so much justifiable pride and pleasure. Trees which have been dealt with in such a manner, should be removed at once, for they can never become what Nature designed them to be, and their presence cannot fail to exert precisely the opposite effect to that for which they were intended, because of the false standards which they illustrate.

Look! and Ask if we Should Not Protect our Trees

In justice to the linemen, however, it should be pointed out that while their operations are serious enough, they are by no means the only transgressors, since these are found even in the ranks of those who by profession, or at least by occupation, might be supposed to exercise the most intelligent and thoughtful oversight and care. The operations of the professional (*sic*) forester, or at least of the man who is paid to fill that rôle, are very often far from what they should be. To cut off a limb with a hatchet instead of with a good saw; to cut from above and allow the falling limb to drag a long splinter with it; to leave a projecting stump with a ragged end; or to leave limbs on the tree long after they have commenced to decay—all these things not only present a most unsightly and unprofessional piece of work, but they one and all invite the entrance of decay and ensure the certain destruction of the tree.

The time has certainly arrived when every town and city should regard it as a paying investment to plant good trees. This should be done not alone by the city itself, but by property holders as well, who should be encouraged, in every way, to undertake such work independently. It should then be the further duty of the town or city to guarantee a suitable measure of protection to such trees against the attacks of animals, the lawlessness of street boys who have no higher ideals than delight in the destruction of everything which contributes to the grace and beauty of our streets, the attacks of insect pests and the operation of parasitic fungi. Furthermore, there should be a systematic inspection of all the trees each spring. Sporadic efforts in this respect are of very little value, but there should be a well-ordered service which will bring every tree under an intelligent inspection. If accomplished regularly and systematically, such service need not be costly, and it could be accomplished before the more pressing work of decorating the squares with flowers begins.

Under such a system, the actual amount of work to be accomplished in a given season would be reduced to a minimum; but where the work is carried out at irregular and often long intervals, the trees not only suffer severely, but the amount of work to be accomplished may become costly.

There is a fine opportunity for public sentiment to express itself forcibly with respect to this very important question; and in cases where the authorities are lukewarm or actually indifferent, it should be taken up and vigorously dealt with by a special association formed for that purpose. The work of such an association—and there are many towns where they are now in successful operation—should be governed by a broad policy which should comprise the encouragement of liberal planting; the selection of those types of trees which are best suited to the climate and to the locality, as also to the street to be treated; careful supervision of and directions for pruning; and lastly, the most careful protection against one and all of the many enemies which prey upon them.

The Amateur's Greenhouse

Hydrangeas should be showing color. When nearing their finish, they should have plenty of water at the roots. Keep pinching and rubbing out the early growths of azaleas. Lilacs, Azalea mollis, flowering cherries and other deciduous shrubs should be allowed to flower in a comparatively cool house.

Pot gloxinias, that were started some weeks ago, in light, fairly rich compost, before they get crowded. Unless the tubers are above ordinary size, five or six inch pots will be sufficiently large. Keep on the dry side until well rooted. Keep them in the light, but not in direct sunshine. Do not forget about keeping the water off the leaves.

Cyclamen sown last fall should be ready for pots. Do not plant deeper than up to the middle of the little bulbs. Thickly-sown seedlings, such as lobelias, petunias and so on, should be transplanted into other boxes before they become too spindly. Cannas and dahlias may be started. If you have not sown seeds of mignonette, candytuft and stocks, sow now. Keep geraniums clean of dry and dead leaves, and pinch back the lanky growth.

My plan of planting roses is in long open hedges, cultivating deeply the ground to a width of four feet and setting the plants in the centre four feet apart. In the spaces can be grown tulips or other spring bulbs and asters or showy annuals. Enrich the ground in the fall with cow manure and in the spring with bone meal.—A. K. Goodman, Cayuga, Ont.

The Leopard Plant

S. Armstrong, Jermyn, Ont.

The leopard plant, *Farfugium grande*, shown in the illustration, is about 10 years old and gets no particular care. In summer, it is placed on a south verandah.

In autumn it is re-potted to one of larger size, the space between the roots and the pot being filled with rich garden soil. The plant is then taken inside and placed in a south bay window, where it remains until spring. The house is heated by a wood furnace. A favorable temperature and an abundance of water constitute about all the attention that the plant gets.

A Leopard Plant Grown Successfully in Ontario

The Care of Garden Tools

Many and varied are the kinds of tools used in the work of gardening about the home. Most of them are familiar to the amateur gardener. More important than a mere enumeration of them is the difference between a good and a bad implement. One of the most commonly used garden tools is the spade. With one of the modern improved kinds, a person can do, with the same exertion, 10 per cent. more work than he could with the heavy, easily-clogged kinds formerly in use. It is also the case that, with well-adapted tools of a superior description, the work also is better done.

The care of tools and implements is a matter that is frequently neglected by gardeners. Economy not only in outlay, but in labor, is secured by the proper cleaning and storing of all tools when not in use. For gardens of considerable dimensions, a tool-house should be provided with arrangements for convenient and safe storing. Brackets and hooks against walls for sieves, ropes, scythes, rakes, spades, and so on; shelves, drawers or cupboards for small tools, and boxes for labels, twine and pegs, should be furnished in every orderly tool-house. Make a point always to return every article to its proper place when not in use.

Wet days may be turned to account by oiling, sharpening and repairing tools that require it. Even in small gardens a place for the storing of tools ought to be found. With good, clean tools, more and better work is accomplished than is possible when they are rusty, or blunt, or rickety.

Lawn and Garden Jots

Fertilizers rich in nitrogen and poor in potash give the most grass and the least clover; they are, therefore, excellent for tennis courts, greens and similar situations.

On a lawn sour and mossy, with failing herbage, use lime and potash (there is no better potastic fertilizer than unleached wood ashes). This will bring in a liberal growth of clover, which can afterwards be largely supplanted with grasses, by withholding the mineral fertilizers and using one or two hundred weight per acre of nitrate soda.

Timely Pointers for Amateur Flower Growers

NOW is the time for making hotbeds for raising petunias, phlox, asters, cockscombs (celosia christata), and other annuals. If the bed has been completed about a week it should be in fit condition to place seed boxes in. Always allow a little air to come in at the back of the frame so as to the hot steam, which always arises from a newly made hotbed, to run off. A few finely-sifted coal ashes, placed on top of manure, are very beneficial as they help to keep in the heat.

Seeds of annuals should be sown in a light, sandy soil in shallow boxes. Very fine seeds do not need to be covered. Sow them on top of the soil. Asters, balsams and zinnias require to be covered in the soil at about a depth the size of the seed. In sowing all kinds of spring seeds, the depth they should be sown can be judged by the size of the seed, that is, have just the same depth of earth on the top of the seed as the seed is high. Seed should not be sown in seed boxes until after the soil in the boxes has been well watered. After sowing, the seed should be pressed with some flat object to force them in evenly. It is a good plan to darken the surface with newspapers or other object to cause the seeds to germinate quickly. The seeds when germinating should be watched carefully. When the shoots begin to show the covering must be removed. At this period of growth, ventilation should be watched closely.

Now is the time to strike cuttings of coleus, ageratum, geraniums, lobelias, These will root in about 10 days or two weeks. As soon as rooted they should be removed and potted in small pots in light, sandy soil, and placed back in the hotbed again. Give them a good watering and keep them shaded from the sun for two or three days to allow the roots to start in the new soil. As soon as they are rooted, they should be again placed in the sun and light.

All pruning should be done now as danger from severe frosts is about over. Hardy roses should have all weak wood cut out, and the stout growths shortened to within six inches of the ground. They will be much benefited by a liberal coating of cow manure placed around the roots. Do this as soon as possible, so that the spring rains may wash the stimulant into the soil.

Now is the time to sow balsams and ferns. Put in boxes, or pots, if boxes are not convenient.

All canna roots should be divided, cleaned and put nto boxes, upon the bottom of which should be placed a couple of inches of soil. Water slightly and expos to the light After they have started growth they may be repotted if so desired. Dahlias should be divided now for summer growth.

Tulips in beds should be uncovered immediately to get all the sun and light possible.

When all frost is out of the ground and the weather is fairly dry, the lawn should be rolled If lawns are in poor condition, use a standard chemical fertilizer to put them in good order. Grass edgings should be cut off evenly.

Plants that are broken down rom winter frosts should be headed back, and grape vines that have not been pruned should be treated immediately to prevent bleeding.

If the roots of phlox or other perennials are large, divide them, using a sp de or large knife.

A Fine Orchid

A FINE old orchid that is free flowering and easily grown when once its requirements are understood, is Cœlogyne cristata. The plant requires a good porous soil, and not too much of it. It is better to use moss altogether than peat of a low grade. Although when once well potted, they will sometimes grow and flower well for 10 or 12 years, that does not mean that, after once being done, they should forever after be neglected. A top dressing should be given yearly after the flowers are past; and, to assist in this work when the plants become crowded, some of the old bulbs should be cut out and the spaces filled with new material. Water should only be given when the plants are seen to be dying out, and then a good soaking should be given. A dose of weak, liquid cow manure every second watering, when in full growth, will make them produce larger bulbs and finer flowers.

They should be grown in a house with a minimum temperature of 50 degrees, and only be shaded sufficiently to keep the leaves from turning yellow. Plants that have become too large may be pulled to pieces, the dead roots and some of the old bulbs cut away, and as many pieces having leads placed in the new pots as can be done without crowding. They will shrivel considerably after this operation, but no attempt should be made to keep them plump by soaking them with water. If the plants are kept shaded and the soil just moist by syringing, they will take hold more freely, and will soon swell up again, when they can be more freely watered.

Cœlogyne cristata in a Ten-inch Pan

Japanese Iris

When should the bulbs of Japanese iris be planted? How long will flowers of this plant last when cut?—A. F., Woodstock, N.B.

Spring is the best season to plant Japanese iris. These plants grow well in rich, moist land. They should be planted in full sun. Shade has a tendency to make the stems weak and blooms flimsy. The latter last fairly well as cut flowers if cut a few hours before the buds are ready to unfold. The stems should at once be put in water and kept in a cool place.

The Best Way to Grow Sweet Peas

Edwin Utley, Toronto, Ontario

THE sweet pea, *Lathyrus Odoratus*, is the most valuable annual flower of the present day. Its delicious perfume, its diversity of lovely colors, its lengthened period of bloom, and its value for cutting entitle it to a prominent place in every garden. By sowing the seed at once it may be had in bloom continuously from the first week in July until cut down by severe frost (generally late in October). Care must be taken to pick every flower as soon as it is fully developed and not to let any seed pods form. If seed pods are allowed to form, the plant will expend all its energy upon them and rapidly cease flowering. By August the seeds will be ripe and there will not be any more flowers.

The best way to grow sweet peas is by the trench system, because it makes one practically independent of the soil the trench is in. The garden may be heavy clay or pure sand, but by digging a trench and filling it with a good compost, one can be almost certain of satisfactory results. If the garden is a good loam all you need is some *old* manure. If it is light sand you will need some good loam and some old manure. I have tried many ways of growing these beautiful flowers, but the following has always proved the most successful.

Dig a trench 12 inches wide and from 12 to 15 inches deep, put a layer of old, well-rotted manure two or three inches deep in the bottom, then a layer of loam three inches, then old manure two inches. Mix the last two layers well with a garden fork and level with a rake. Fill the trench to within two or three inches of the top with soil, *without any manure*. Level nicely and sow your seeds. Cover to the top of the trench with loam; press down by walking back and forth on it two or three times. Your seeds will then be about three inches below the surface of the trench, and the surface slightly below the rest of the ground. I have sown sweet pea seed in the same trench three years following, just adding a small quantity of old manure each year, and forking it in, and the flowers the third year were better than those of the first.

Secure the best seeds that you can obtain. It is false economy buying cheap seeds. Sow the seeds in rows or broadcast in the trench an inch or two between each seed and when they grow above the surface (which they will do in about two weeks) pull enough to leave the vines not less than three inches apart. Each plant, if properly grown, will fill up a foot of space. As soon as they commence to grow put up something for them to cling to. There are many ways to do this. Brush is the most natural and effective, but in a city it is not easily procured. Poultry netting is probably the simplest support, and it answers the purpose well. Let it come within two inches of the soil, because if the stems have not support early they become bent and the flower stalks will then also be crooked. Do not adopt the foolish fashion of putting strings vertically for the peas to cling to. They do not twine like a morning glory but send their tendrils in all directions, feeling for something to cling to.

If you have plenty of room let your sweet peas be sown away from the fences in a sunny position, the row running north and south, so that they can get all the sun and air possible. Before the weather gets very hot spread two or three inches of old manure or the clippings from your lawn over the roots of the vines. This is called mulching, and not only helps to retain the moisture but keeps the roots cool, an important thing with sweet peas. If you cannot do this keep the soil open by an occasional raking not more than an inch deep or scatter seed of the sweet alyssum along the trench. This plant does not send its roots down far enough to interfere with the sweet peas, and will help to keep the ground cool, at the same time giving you some nice sweet-scented flowers.

If the plants lose their bright green color, it is either because the manure is too strong or you have not enough of it. If the former there is no cure for it, but drenching the ground thoroughly with water will help. If the latter, an application of nitrate of soda will do much good. Dissolve a dessertspoonful in a pail of water and pour into the trench once a week. If the household washing is done at home, there is no better application for sweet peas than the suds which are thrown away; run them into the trench when cold and not too strong. Be sure that any manure you use is old and thoroughly well rotted. Cabbages, cannas, and so on, will stand strong manure, but sweet peas will be destroyed by it. The manure I used last year was four years old.

Sweet peas need plenty of water but the ground must not be kept sodden. They are liable in hot weather, unless the vines are kept moist, to be attacked by the red spider and then good-bye to your flowers. Keep the vine sprinkled with water (not drenched) once or twice a day in hot weather. If the ground is kept too damp the buds will turn yellow and drop off without opening. Avoid lime in any form.

There is not a plant grown in Canada that will give more flowers or for such a long period as the sweet pea. I have seen a record of one vine giving 1,200 flowers in a season. One year, I made my first cutting on July 1, and my last on November 7. I have a note in my diary under date of October 24, 1874: "Cut 20 dozen very fine sweet peas to-day." What flower can beat this?

Perennial Larkspur

Wm. Hunt

Some of the newer hybrids of these lovely, showy, hardy, border plants are a great improvement on the older types. Their long, erect spikes of flowers in all shades of blue, from the palest lavender to the deepest violet blue, make them a conspicuous object in the mixed border about the end of June and early in July.

The dwarf types promise to become popular, as one of the objections to the older types has been to keep them erect during the heavy rainstorms of summer. Seed sown in spring or early summer will produce good flowering plants the following summer. They can be sown in the border or in boxes and transplanted.

Fertilizing Kitchen Garden

My kitchen garden, 20 x 48 feet, was well manured for three years until last fall, when I neglected the application. It was well spaded, however, and left rough. Will it do to use chemical fertilizers this spring instead of barnyard manure; if so, what kind? Each year two or three succession crops have been grown by the liberal use of bone ash and nitrate of soda—J. M., Toronto.

It is quite possible to grow the crops this coming season without the application of any more farmyard manure. As you have applied bone ash, which is rich in phosphoric acid, and as the farmyard manure is comparatively rich in nitrogen, I would particularly advise the use of a considerable quantity of potash in the muriate or sulphate of potash form; or, if you can procure them, in the form of wood ashes. I think that along with that it would be well to use a little nitrate of soda for such crops as lettuce or radish to force rapid growth.—Answered by R. Harcourt, O.A.C., Guelph.

Growing Cos Lettuce

How should Cos lettuce be grown?—Mrs. P. C., Kentville, N.S.

Sow the seed and grow as you would other kinds of lettuce. When the leaves are large enough, they should be blanched by gathering them up and tying at the top. In a week or 10 days they will be fit for use.

Growing Potatoes for Profit*

W. A. Broughton, Sarnia, Ontario

JUDGING from 30 years' experience, the best soil for potatoes is a rich, sandy loam, with six to nine inches of surface soil, that is well drained either naturally or by tile. Drainage is important. Potatoes do not thrive on land that is not well drained. Drained swamp or muck lands grow good crops. As many as 400 bushels an acre have been grown on this kind of land. Sandy lands require more manure than any other kind. Stiff or heavy clay soils do not grow good potatoes. A clay loam will grow a good crop if properly handled.

PREPARATION OF THE LAND

The land should be plowed and disc-harrowed in August. It should be harrowed after each rain to keep down the weeds and to clean the land. Just before it freezes, the land should be plowed again seven or eight inches deep, if the surface soil will permit. Land prepared in this way the fall before, stands the dry weather better than it otherwise would.

As soon as it is dry in the spring, the land should be harrowed enough to level it and then 25 or 30 loads of rotten manure an acre should be put on with a manure spreader. If the land were a clover sod or second crop of clover plowed under the fall before, less manure is required. The land should be plowed, harrowed, rolled and again harrowed lightly. It is then ready to plant.

The Potato Planter at Work in Mr. Broughton's Market Garden

PLANTING

It is best to plant potatoes, both early and late varieties, as early as possible. Some growers plant the later varieties late. This is a mistake. I have found that late varieties will do better when planted early.

The best early potatoes are Early Ohio, Early Burpee, Bovee and Early Michigan. The best late ones are American Wonder, Rural New-Yorker, Empire State, Elephants and Clark's No. 1.

A change of seed is always desirable; that is, from one kind of soil to another. Seed potatoes should be of medium size and cut to one or two eyes. They should be planted as soon after cutting as possible. Plant them in drills from 30 to 32 inches apart and 12 to 14 inches apart in the drills, and about four inches deep.

I use an Improved Robbin's Planter, which, in one operation, marks the row, opens the furrow, drops the seed and covers them. The machine requires a man, a boy and a team of horses. Planting done by the machine is better than the old way of planting by hand, for the following reasons: The depth is uniform; 2, the seed is put in moist earth, covered at once and, therefore, not so apt to dry rot on account of lack of moisture; 3, the rows can be made straight; and 4, time is saved in planting, as the machine will plant four or five acres a day. The machine has a fertilizer attachment that can be used when desired. With it 400 to 800 pounds of good fertilizer can be put in the rows. This gives the potatoes a better start and insures a better crop.

CULTIVATION

A week or 10 days after planting, the potatoes should be gone over with a weeder, the same direction as planted, to level the ridge that is left by the planter and to kill small weeds. This operation should be repeated every few days until potatoes are a couple of inches high. They should now be cultivated with a cultivator every week until tops are too large to permit cultivation. For the first few times they should be cultivated deep and close to plant, but shallower and farther from plants as they grow. Hoe them before the tops get too large. At the last cultivation, hill them slightly, just enough to protect the potatoes from the sun after the vines are dead.

The vines should be kept free from "bugs" by spraying with the following mixture: Two pounds of good Paris green to 50 gallons of water. For blight they should be sprayed with Bordeaux mixture five or six times during the growing season. Apply the Paris green and Bordeaux mixture at one application.

*The first prize essay on "Potato Growing" in the competition conducted by the Ontario Vegetable Growers' Association.

Melons and Melon Growing†

W. G. Horne, Clarkson, Ontario

Muskmelons and watermelons require warm, sandy land and considerable manure. The latter should be spread broadcast. It is too concentrated in hills, and has a tendency to dry them out. All the roots that need feeding are not only in the hills. They extend as far under ground as the vine reaches above ground. I have turned them up with the cultivator much farther away than I expected.

Melons need good cultivation. While the vines are small, the land cannot be worked too much. The land should be kept as free from weeds as possible.

Hot seasons suit melons best. They are of better flavor when the season is warm. They can stand dry weather for a long time if we have heavy dew at night. Much rain is not required, and too wet weather causes muskmelons to crack open. This renders them unfit for market, and not much good for home use.

WORK IN THE HOTBED

There is much to contend with in growing melons for the early market. It is necessary to start them in hotbeds,

†Extract from an address delivered at the last annual convention of the Ontario Vegetable Growers' Association.

which means a great deal of extra work, and work that needs the closest attention. If they are neglected at certain critical times, much labor and plants are lost.

The most critical period in raising melon plants in a hotbed is at the time of germination, and just after they have made their appearance. The best temperature for growing melons at this particular time is from 75 to 80 degrees; in fact, this temperature is the best for them at any time. After being planted in the open, however, they have to stand sometimes a temperature not much above freezing. Hence, it is well to get them used to as low a temperature as possible a week or so before moving them into the open field. This will make them hardy and strong.

In starting the melon in the hotbed, it has to be done so that when it is moved into the open, the roots will not be disturbed. Melon plants will not "transplant," in the true sense of the word. It is necessary to plant them either in pieces of sod or in pots. These can be moved to the field without interfering with the roots.

Some growers use pots instead of sod, claiming that the plant takes root quicker in pots because the sod is full of grass fibres. I have tried both, and have not noticed any difference in this respect. For other reasons, I prefer the use of sods. There are distinct advantages in using sod. Pots have to be filled with the choicest of soil, and this has to be found every time you plant; they cannot be handled so easily as the sod when drawing out to the field, and they have to be cared for and stored from one year to the other. With the sod, you simply have to cut, place closely in the frame and plant. When drawing to the field have them well soaked with water. Make your hole deep enough so that the sod will be two inches below the level.

Where the land is in good condition, watermelons should be planted at least seven feet apart each way, as although a large fruit, it grows a long, slender vine with small foliage. Muskmelons can be planted much closer. Five feet each way is the usual distance. Three plants in a hill are plenty.

Both kinds are prolific. An acre of muskmelons is capable of producing 800 dozen, and watermelons from 400 to 500 dozen, weighing possibly some 50 tons. These figures estimate an excellent crop and a possible one.

Celery a Profitable Crop*

J. Friendship, Kingston, Ontario

Celery is one of the most profitable crops that the market gardener grows, providing he has land suitable for its culture. It can be grown on almost any good soil, but on some the crop will not pay for the labor. The soil I prefer is one that is always mellow and does not get too wet or too dry. Such land is found in a hollow where in former years may have been a small lake whose bed is now covered with rich humus, 12 to 20 inches deep, with a blue clay bottom. Such soil will retain moisture and, if properly drained, seldom gets too wet. On such soil celery can be grown at one-quarter the cost of that grown on stiff or harsh soil. On proper soil the work from start to finish is easily done. Where such soil is not available, the land must be made as near it as possible by plowing and the working in of several dressings of good, rich, well-rotted stable manure. The harsher the soil, the more humus is required to make it mellow. When the soil is in this condition, it should be well ridged in the fall so that no surface water can remain. In the spring, it should not be worked until dry. It then should be well worked and kept mellow until planted. It is a hard job to set out from 25,000 to 50,000 celery in stiff, dry soil.

GROWING THE PLANTS

In growing the plants the best soil that can be secured is necessary. Celery seed is slow to germinate and should be kept shaded until it appears above ground. Cover the seed very lightly and keep the soil moist, but not wet. The plants are hardy, but grow slowly. Weeds grow much quicker and should be removed as soon as seen. As soon as the plants form the second leaf they can be set in another bed, if you prefer transplanted plants. If not, they should be thinned out so as to get strong, rooty plants. The majority of gardeners do not use transplanted plants. They prefer setting direct from the seed bed, unless they intend growing celery for summer use. For that purpose, the seed should be sown in March in a well-prepared hotbed and, when large enough, removed to another bed, setting them three inches by two inches, so as to form good plants.

There is great danger of celery plants running to seed if they receive a severe check in growth. Great care is required in the setting and growing. I have seen nearly the whole setting of early celery lost by it running to seed. Late sowing should be done about the first of May or later. Late sown seed needs the same care as early. The soil requires to be kept moist. It dries out much quicker in May than in April.

*Extract from the first prize essay on Celery Culture, in the competition conducted by the Ontario Vegetable Growers' Association.

The Old Way

The New Way

Near cities, where market gardeners apply large quantities of manure to their land, the use of manure spreaders is becoming more general. Near Toronto, Mr. Joseph Rush, of Humber Bay, who uses one of these machines, writes us that with it he spreads 12 tons of manure to the acre. The machine is handled easily by two horses. When loaded evenly, from front to back, it spreads long, green manure as well as any other kind. Mr. Rush applies his manure at the rate of 50 loads an acre, and reports that he considers the manure spreader one of the best labor-saving devices on his place

OUR QUESTION AND ANSWER DEPARTMENT

Readers of The Horticulturist are Invited to Submit Questions on any Phase of Horticultural Work

Pollinating Lindley Grape

Can the Lindley grape be pollinated artificially and profitably to obtain a more perfect bunch?—S. L., Prince Edward County.

This question was sent to the Central Experimental Farm, Ottawa, from Winona, Ont., but as the writer did not sign his name to the letter, the columns of THE CANADIAN HORTICULTURIST have been used, knowing that the reply will come under his eye.

The Lindley grape is one of the varieties known to be self-sterile or partially so; consequently, if planted by itself, the bunches will be very imperfect. To get good bunches one should have one or more varieties, that bloom at the same time, planted near, to pollinate it. At the Central Experimental Farm, where we have a large number of varieties in our vineyard, and only a few vines of each of these scattered in different parts, the bunches of the Lindley are, most of them, well filled and quite satisfactory. We should advise, in planting a vineyard, to plant alternate rows of another variety. Niagara and Worden should make two good sorts for this purpose.

Experiments in artificially pollinating the Lindley have given very satisfactory results, although the experiment was not carried on with the idea of making it pay; but, it is quite probable that it could be profitably done. In the case referred to, bunches of another variety were simply attached to bunches of Lindley when they were in bloom, and nature did the rest. It is possible that a more economical method of using pollen could be devised, such as applying it direct to the flowers. This will be a good line of experiment for the Niagara Fruit Experiment Station to take up.—W. T. Macoun, Horticulturist, C.E.F., Ottawa.

Pruning for Fruit Buds

If a lateral shoot of an apple tree be pruned back one-third, to or near a promising fruit bud, or two-thirds, with fruit buds on two year wood, has it a tendency to make or turn these said buds into wood growth? Is it a mistake to cut back every lateral, in spring pruning, on a tree, for are not a great number of the terminal buds fruit buds? Can you name the varieties whose fruit buds are frequently and invariably terminal?—L. B. P., Salmon Arm, B.C.

The pruning back of lateral shoots of apple trees will not change the fruit buds that have already been made into leaf buds. The fruit buds were formed early last summer and will expand when the time comes. Severe heading back of laterals in the spring will, however, have its effect on the number of fruit buds which will form this season, as the tree will be re-invigorated by the heading back and the tendency will be for it to make leaf buds rather than fruit buds, although there may be as many of the latter form as is needed for a good crop.

It would be a mistake to cut back every lateral very severely, as it would mean the sacrifice of too many fruit buds. The ones to prune back will be learned by practice.

We have not made a study of the varieties which are most inclined to bear fruit on terminal buds, so cannot say which do it most.—Answered by W. T. Macoun, Horticulturist, C.E.F., Ottawa.

Hardy Roses for North

Kindly recommend a few varieties of roses for continuous bloom throughout the season in Peterboro county?—S. A., Jermyn, Ont.

The following half-dozen varieties of hybrid perpetual roses are among the best and hardiest: General Jacqueminot, Mrs. J. Sharman Crawford, Mad. Plantier, Ulrich Brunner, Magna Charta, and Alfred Colomb. While these will not bloom freely throughout the summer, most of them will continue to give a few blooms until autumn. By planting a few of the hybrid tea roses, more bloom will be obtained late in the season. Two of the best of these are: Kaiserin Augusta Victoria and Caroline Testout. The former is a white rose and the latter a pink. These are not quite so hardy as the hybrid perpetuals but, with a little protection, they come through the winter very well at Ottawa.—Answered by W. T. Macoun, C.E.F., Ottawa.

Transplanting Dogwood

Some fine specimens of Flowering Dogwood, *Cornus Florida*, are growing in the woods not far from my home. Kindly advise me as to the best time of year to take up and transplant dogwoods that are growing in a wild state?—B. P., Grimsby, Ont.

The only season in which dogwoods may be transplanted is spring. These wild trees have few roots, and you will not succeed with the transplanting unless you prune back the branches severely. Should you desire to secure the trees without its being necessary to prune back one-half or more of the growth, it will be necessary to root-prune the trees this spring and allow them to remain a year before transplanting. The cutting off of the roots causes many more smaller ones to form, and this almost assures transplanting with safety. Dig a trench around the trees, 18 inches or two feet from the trunk; dig to a depth of two feet, then dig under the trees, cutting off all roots met with from first to last. Fill back the soil and let the trees alone for a year. But if the trees are out of shape prune back the branches a little, to shapen the outline. In fact it is a good thing to prune the branches at the same time that the roots are pruned. Such root-pruned trees rarely fail to live, and the practice is often adopted by those who wish to transplant wild trees.

Watering Trees at Planting

I intend to plant some shade trees this spring. Is it best to water them at the time of planting?—R. T., St. Hyacinthe, Que.

Tree planting succeeds best when water is applied. The water carries the soil in close contact with the roots. Pour the water in when the hole is about half filled with soil. When it has soaked away, the rest of the hole should be filled in with soil comparatively loose. Watering in this way saves ramming or firming the soil with the feet or a pounder.

Cost of Forcing House

What would be the cost to build a forcing house of about 400 square feet? What would be the proper size to build for a beginner? Which is best, steel or wooden frames? Would a forcing house of size mentioned pay?—N. C., Riviere du Loup, Que.

The cost of a forcing house of 400 square feet can best be determined in the vicinity where it is to be built, as prices of material vary greatly, and also the plans and construction. In Leamington, it would cost about $100. It is difficult to state the proper size for a beginner without having some knowledge of the man and his capital. It is best to start on a small scale and increase as experience warrants. A house of 400 square feet, or even twice that size, is of little value except for starting plants in spring for moving to the open ground when the weather becomes warm. I have one house 42 x 100 feet, exclusive of boiler room, and I find it too small for growing vegetables in winter. It would pay "N. C." to erect a house for the purpose of producing plants for transplanting later and growing outside. For so small a house, it is best to use a wooden frame.—Answered by J. L. Hilborn, Leamington, Ont.

The Canadian Horticulturist

Published by The Horticultural Publishing Company, Limited

The Only Horticultural Magazine in the Dominion

Official Organ of British Columbia, Ontario, Quebec and Prince Edward Island Fruit Growers' Associations and of the Ontario Vegetable Growers' Association

H. Bronson Cowan, Managing Editor and Business Manager
A. B. Cuttino, B.S.A., Horticultural Editor
W. G. Rook, Advertising Manager
Garrett Wall, Circulation Manager

GREAT BRITAIN

Frank Fletcher, 135 Henrietta Street, Old Trafford Manchester, Eng., Advertising and Circulation Manager

1. The Canadian Horticulturist is published on the 25th day of the month preceding date of issue.

2. Subscription Price 50 cents a year, three years $1.20, strictly in advance. For all countries except Canada, United States and Great Britain add 50c. for postage for each one year subscription.

3. Remittances should be made by Post Office or Money Express Order, or Registered Letter. Postage Stamps accepted for amounts less than $1.00.

4. Discontinuances—Responsible subscribers will continue to receive The Horticulturist until the publishers are notified by letter to discontinue, when all arrearages must be paid.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising Rates quoted on application. Circulation 6,000. Copy received up to the 18th. Responsible representatives wanted in towns and cities.

7. Articles and Illustrations for publication will be thankfully received by the editor.

Our Protective Policy

We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason to believe that any of our advertisers are unreliable, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant we will expose them through the columns of the paper. Thus, we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefits of this Protective Policy is that you include in all your letters to advertisers the words "I saw your ad. in The Canadian Horticulturist." Complaints should be sent to us as soon as possible after reason for dissatisfaction has been found.

Communications should be addressed:

THE CANADIAN HORTICULTURIST,
506-7-8 Manning Chambers,
TORONTO, CANADA

ACTION IS NEEDED

The presence of the San Jose Scale in localities in Ontario where, until recently, it was not known to exist, shows that the pest is spreading. A few growers deny this, but the truth is that the San Jose scale is to be found in districts a considerable distance from its first breeding ground in Canada, and where its presence is denied. Only recently an investigation in some forty orchards in a section of the Niagara district where the scale was not known to exist, revealed the fact that there was more or less scale in all but three of the orchards. Instead of trying to hide the truth growers should let the presence of the scale be known, that steps for its eradication may be taken. When it first appears in a locality, its presence should be reported to the provincial department of agriculture without delay.

The San Jose Scale has gone past the stamping-out stage. It is here to stay, and it must be fought persistently each year. Its control is not a difficult matter when treated annually and in the right way. The trouble is that most growers, except those in old-infested districts, do not know it when they see it, and do not realize what a devastating pest it is, and therefore neglect to combat it until it has secured a firm grip on their trees. Then there is a danger that after a few attempts to save their orchards they will give up the fight in despair. It would be well, therefore, for the Government to make a thorough investigation to ascertain just how far the scale has spread, and to send a man into the midst of such growers to teach them what to do. Such a step is necessary if growers, who do not know the scale nor its remedies, are to meet and cope with the advances of the pest. Our growers have played the part of the ostrich, and refused to recognize the seriousness of the situation too long already. The time for action on the part of both the growers and of the provincial department of agriculture has arrived. It should not be delayed.

BE ON THE WATCH

Oftentimes and usually foreign insect and fungous pests are imported into Canada, and do much damage before their presence is noted. Many of our injurious pests have introduced themselves in this way. Others will follow. It behooves all persons interested in horticulture, in any or all of its branches, to be continually on the watch for new diseases and insects. The Gipsy and Brown Tail moths that have done so much damage in the New England states, and upon which thousands of dollars have been spent in an effort to exterminate them, already have been found in New Brunswick. Maritime horticulturists should report the presence of all suspicious caterpillars or moths that they may find.

The dreaded "railroad worm" of the apple orchards in New York state, known more properly as the apple maggot, is becoming numerous in certain orchards in Quebec. It should be watched for by fruit growers in that province, and in the eastern counties of Ontario.

A disease prevalent in Pennsylvania and other states, and one that is working northwards, is the "frog-eye" of the apple. It works on the leaves and produces an effect from which it derives its name. It is a difficult subject to contend with. Growers in Ontario and eastward to the Atlantic provinces should forward to their provincial agricultural colleges, departments of agricultures, or to The Canadian Horticulturist, any specimens of diseased leaves that show characteristics of this nature. Only by observing and locating these troubles at the outset can they intelligently be warred against.

A SAFE INVESTMENT

A few shares of the Horticultural Publishing Company, Limited, are still offered for subscription. This company owns The Canadian Horticulturist and *The Canadian Florist*, two publications that are growing rapidly and that are the only ones in their respective fields in Canada.

The Canadian Florist last year produced a handsome surplus over the cost of publication. The management expects that The Canadian Horticulturist also will be self-sustaining after this year, and that the company soon will be able to declare profits.

Here are some facts, taken in part from a notice sent recently to the shareholders of the company:

For four years in succession the receipts of the company from advertising have more than doubled each year.

Advertising rates in The Canadian Horticulturist average four cents a line. As the circulation of the paper increases, these rates can be advanced to eight and ten cents a line and higher, and the receipts from advertising be increased in proportion. This can be done without enlarging the paper. One fruit paper in the United States charges twenty-five cents a line for its advertising.

On September 1, 1906, the paid circulation of The Canadian Horticulturist was 4,100. To-day, it is over 6,500 and growing rapidly. This means that the advertising rates will be advanced soon.

Last year *The Canadian Florist* netted a profit of over $800. This year it will do still better. In one issue recently it carried over half a thousand dollars' worth of advertising.

Every director of the company has increased his stock holdings. Some of the directors have more than doubled the number of their shares

This is not a get-rich-quick-perhaps scheme like some of the Cobalt and other mining enterprises that are flooding the market with their stocks. Instead, it is an opportunity for you to make an investment in a company that is managed by well-known and reliable men, and that is conducting a line of business that is noted for the safeness of investments made therein. If you are interested in fruit or flowers and would like an opportunity to secure a few shares of this stock we will take pleasure in sending you a prospectus giving full particulars. Write to The Horticultural Publishing Company, Limited, Rooms 506-7-8 Manning Chambers, Toronto, Ont.

It is surprising to learn that the Minister of Agriculture at Ottawa has seen fit to dispense with, temporarily, the services of two of our fruit inspectors. The attempt to evade the Fruit Marks Act by shipping via a foreign port and remarking there, the fact that only a small percentage of the apples exported from Canada come under the eyes of the inspectors, and the general need for a more strict enforcement of the Act would indicate the advisability of adding to the force of inspectors rather than substracting from it. The minister would serve the industry better were he to re-employ the suspended inspectors and then double the whole force.

The manufacturers of baskets for shipping fruits are making such in the expectation that the law regulating the size of baskets will be changed during the present session of the Dominion Parliament. A year ago all sizes were definitely defined by the growers, and resolutions pointing out the desired changes were laid before the Minister of Agriculture at Ottawa. As yet, nothing has been done by parliament to meet the requirements. Growers are anxiously awaiting the announcement that the Weights and Measures Act has been amended along the lines desired.

Such splendid work has been done by so many of the horticultural societies in Ontario to improve the civic beauty of the centres in which they are organized, that the Ontario Horticultural Association deserves credit for having arranged to have Mr. J. Horace McFarland, the president of the American Civic Association, address a series of meetings in Ontario. Mr. McFarland has done more than any other one man on the continent to awaken general interest in civic improvement. As he is a fluent and pleasing speaker, and possesses many interesting stereopticon views, his meetings in Ontario should be well attended and productive of much good.

Fruit growers have been imposed upon by unreliable nurserymen so frequently that it is strange that vigorous and united protests have not been more numerous. Suggestions to lessen the difficulty have been embodied in resolutions passed by the Ontario Fruit Growers' Association, the Ontario Cooperative Fruit Growers' Association, the Niagara Peninsula Fruit Growers' Association, and other organizations, and sent to Hon. Nelson Monteith, Minister of Agriculture for Ontario. It

is hoped that the minister will take immediate action in the matter. Such will not injure nursery firms that are reliable. It may be a means of ridding the country of those that are not. There are sufficient of the former to supply the demand. The latter are not needed.

This year, as a result of the new act governing horticultural societies, a number of Ontario horticultural societies that, in the past, have been of little value, having been merged with their local agricultural societies, are starting out for themselves. One of these, Goderich, is planning to offer prizes for garden competitions, to distribute seeds among the school children, and to conduct an energetic campaign along horticultural lines. May the efforts of these societies meet with the success that they deserve.

What are you doing to help us increase the circulation of THE CANADIAN HORTICULTURIST? If you will merely draw the attention of a few of your friends, who are interested in fruit and flowers, to its merits and low subscription price, it probably will be sufficient to lead them to join the ranks of our regular readers. Any help of this kind that you may give us will be much appreciated.

Work for the Station

The discussion at one session of the recent convention of the Niag. Pen. Fruit Grs.' Assn. centered in a subject of much importance to the fruit interests of the Niagara district; namely, the work and purpose of the new experimental station at Jordan Harbor. S. W. Fletcher, professor of horticulture and landscape gardening, Agricultural College, Lansing, Mich., said that one of the chief problems that will require attention is the improvement of varieties. While many of our varieties have good qualities, they usually are found wanting in one or more respects. A variety, for instance, which is of good color and flavor, might be of little value for shipping purposes. At the new station, varieties and classes of fruit should be bred for keeping qualities, flavor, hardiness, freedom from rot; in fact, they should be bred to eliminate all undesirable qualifications.

To be successful in plant breeding, one must first recognize the fact that there is a great variation in plants. The foundation for the work lies in the fact that no two plants are alike, and that even the least deviation in varietal type might, by crossing and selection, develop into a new variety of superior excellence. The professor described in detail the mode in which a plant breeder performs the operation of crossing and pollenating the blossoms.

The value of propagating nursery stock from trees of known worth also was mentioned by Prof. Fletcher. In selecting scions for the multiplication of stock in nurseries, the nurseryman should know the history of the trees from which the scions are taken. It is not always possible to secure large quantities of scions from bearing trees; in such cases, it would be well for nurserymen to propagate primarily from bearing and productive trees and for the next few years renew their stock from scions taken from young trees thus propagated. Every 4 years, however, it would be necessary to go back to the bearing trees for a renewal of the stock.

The professor said that the new experimental station would do well to make out a list of varietal names and synonyms for the use of our fruit growers. This is necessary because there are so many varieties that are nearly alike in character and even in standard sorts there are distinct varieties or strains.

An interesting feature of Prof. Fletcher's address were some comments on the Spencer Seedless apple. Recently the professor visited the home of this fruit, and found it to be nothing more than a fake. The apple, according to the professor, is below medium. in size, poor in color, and not pleasing in shape, coarse in texture and in quality, below that of Ben Davis; in fact, its only value is its keeping quality. It is not seedless, as at least two-thirds of the apples have seeds of more or less development. The worst feature of this novelty, however, is the fact that it has a core, and a tough one. It is the core of the apple, and not the seeds, that bother the housewife and the canner. "The Spencer Seedless apple," said the professor, "is a horticultural gold brick—there is nothing in it."

Markets of the West

During one of the sessions of the convention of the O.F.G.A. held in Nov. last, Robt. Thompson, of St. Catharines, discussed the markets of the west. He spoke particularly of the progress that has been made in the trade between the St. Catharines district and the west. Until 3 years ago, shipments to the west were made at only irregular intervals, except in the case, perhaps, of grapes and apples. On the whole they did not turn out satisfactorily. Buyers said that they would pay only the price that the fruit would bring at the point of shipping. Three years ago there was a change. Under the direction of Professor Reynolds of the O.A.C., the government sent some experimental shipments to the west that proved that fruit could be carried through successfully.

To take full advantage of the western markets, cooperation is necessary. It is not wise to send shipments of less than a carload, and it usually takes a number of growers in combination to fill a car each day. It should be packed at the right time, and cooled before shipping. A number of growers working together can get assistance from the departments at Ottawa and Toronto. They can load the cars quickly and have better railway facilities and fewer losses. They are in a position to better know the requirements of the market and distribute their fruit to better advantage.

Tomatoes for the west must not be sent green. The best stage is learned by experience. They should be firm and nearly all red. A lot depends on the package. Put part of a shipment in the 4-tray boxes. In a car, place, say, 100 trays, and 300 bskts. An assortment of sizes gives best returns. Peaches should be packed in boxes, and a large part of the shipment should be wrapped. It only costs from 5 to 8 cts. a box to wrap them. There is a good market in the west for pears, not in carloads, but in reasonable lots. Ont. pears are of better flavor than those imported from the western states. There is a market also for early apples if handled properly and packed right. The grape outlook is good; there is no competition, as B.C. cannot grow grapes. In other respects, competition with B.C. is not to be feared for 20 years to come; then the most serious competition will be in apples. Apples for the west should be packed in boxes.

Boxes vs. Barrels in England

The Extension of Markets Division, Ottawa, has received a letter from the department's cargo inspector at Glasgow, dated Dec. 14, 1906, of which the following is a copy: "Enclose, please find catalog of Messrs. Simons, Jacob & Co.'s apple sales. You will observe that some very high prices were paid for boxed apples from British Columbia, and also a note at the foot re sales of boxed apples from Oregon. These boxes are about the same size as Ont. boxes, and the fruit in each case was papered. There is an increasing quantity of apples in boxes being imported to Glasgow from B.C., all of excellent quality. Apples in boxes are becoming more popular, I believe, in Glasgow and district, and I think there is a market for a larger quantity of 'fancy grade' Ontario apples than are at present shipped. In the recent arrivals of boxed fruit there has been so much No. 2 grade, some of indifferent quality, that it compares very unfavorably with boxes from Ore. and B.C., whose imports are rapidly establishing a reputation for excellence.

"I had a conversation with an importer of Ont. apples in boxes, who is also a retailer of Ore. and B.C., and he is of the opinion that it would be well for Ont. shippers to utilize this style of package for fancier quality of fruit than they are packing. The prices realized at the sale in question were:

British Columbia Apples—Prize Medal Fruit.

	Boxes.	Price
Canyon Brand, Spitz.....	9	14/
Cold Stream Brand, Spys....	5	14/
Jas. Gattreal, Kings.....	10	17/3
Nonsuch.....	5	12/6
Summerland Brand, Nonsuch.	5	16/6
Salome.....	10	16/6
Spitz.....	5	16/6
Stirling & Pitcairn, Newton...	5	18/3

"At the same time Oregon Newton Pippins in boxes were selling for 14 shillings a box, and the same variety in barrels was realizing on an average 16 shillings a bbl., thus showing that the package had a great deal to do with the enhanced price received for the boxed fruit."

San Jose Scale in Cities

Ed. CANADIAN HORTICULTURIST,—The San Jose Scale is spreading to an alarming extent. During the season of 1906, it spread faster than in previous years, partly owing to the continued hot, dry weather, and partly on account of the apathy or indifference of people who fail to live up to the law, and neglect to spray or cut out infested trees.

We have, in St. Catharines, a number of vacant lots, the owners of which live out of the province. These lots contain many seedling fruit trees, covered with scale and black knot. As there is no provision in the act to meet such cases, these places become uncontrollable breeding places for all kinds of insects as well as black knot. I do not suppose that St. Catharines is any worse in this respect than other municipalities, but I thought that by calling attention to this matter, you might be in a position to help us to find the remedy.

The season has arrived when all persons owning or occupying properties on which trees or shrubs are growing that are susceptible to scale or black knot, must be up and doing. They must get to work with a will and severely prune their trees and, where they find a tree that is badly affected, cut them out. Pruning makes spraying less costly and more effective.

There are several spraying formulas on the market, but only two have proved effective. One of them, the lime and sulphur formula, owing to the difficulty of preparation and handling in the small places of the city, as well as the trouble of getting men to apply it, is unsatisfactory. We are obliged, therefore, to use the Carlson formula. We have used this with good results for the past two years. It is easy of application and one barrel will cover about 3 times the number of trees that sulphur and lime will cover. I have had it used with good results in the latter part of the month of June, without seriously injuring the foliage or fruit.

The following is a list of trees, bushes and shrubs that are susceptible to scale: Apple trees of all varieties, Greening most susceptible; crab apples, badly; peaches of all varieties; plums of all varieties, Japans badly; pears of all varieties, Kieffer seldom attacked; apricots, not badly; sweet cherries; currants; quince; also rose bushes, lilacs, privet hedges, Japan quince, all kinds of thorn, willow, mountain ash and poplar.—Thomas Beattie, San Jose Scale Inspector for St. Catharines.

Get your friends to subscribe for THE CANADIAN HORTICULTURIST.

Practical Pointers on Small Fruit Culture

AMONG the many points of interest to strawberry growers mentioned in Bull. No. 276, N.Y. Exp. Sta., Geneva, is the variation in the tendency to produce runners, or to make new plants, to be observed in the characteristics of varieties. This is a point that deserves more attention than it usually receives. Most varieties produce a moderate number of new plants; some make very few, while others are such prolific plant makers that, unless planted far apart, the plants are badly crowded. When selecting and planting varieties, these differences should be borne in mind. Among the varieties at Geneva that produce very many plants are Mark Hanna, Ridgeway and Senator Dunlop; very few plants, Challenge, Joe Mead, etc. Among the vigorous plant producers at Guelph, are Sadie (no use otherwise), Ruby, Standard, etc.; medium to light, Warfield, Wm. Belt, Clyde, Glen Mary, Van Deman, Irene and Jocunda.

CULTURAL NOTES ON BUSH FRUITS

During the past summer a bulletin, No. 278, on raspberries and blackberries, was issued by the N.Y. Agr. Exp. Sta., Geneva. Besides mentioning the best varieties and classifying them according to their characteristics, such as hardiness, earliness and so on, the bulletin contains many interesting cultural directions which, in part, are as follows:

Raspberries and blackberries are nearly as cosmopolitan as strawberries in regard to adaptation to soils. Deep, moderately sandy loams, or clay loams containing an abundance of humus, usually give best results with raspberries, while blackberries are often at their best on a slightly heavier soil. It is important that the soil be not too wet as this condition often increases the amount of winter injury.

There is no one brand of fertilizers best suited to raspberries and blackberries under all conditions. The kind of plant food to use depends on the amount and kinds already in the soil, and on the physical condition of the soil. Some soils lack nitrogen, others potash or phosphoric acid, and many are deficient in humus which not only supplies plant food, but also aids greatly in the retention of moisture. Stable manure and cover crops are available for supplying humus. Care must be used in making applications of nitrogenous fertilizers or the resulting growth will not mature, a condition which may cause severe winter injury. If the soil is already rich in humus, it would appear desirable in some cases to avoid the use of stable manure, using commercial fertilizers in its place. Wood ashes, muriate of potash, acid phosphate, etc., are valuable where needed. The best way to determine the kind and amount to use is by trial, leaving check rows for comparison.

Raspberries and blackberries, unlike strawberries, occupy the soil for a number of years, and for this reason the preparation should be very thorough. If too wet the land should be underdrained. If for 1 or 2 years preceding, hoed crops have been used, there will be fewer weeds to fight. The land should be well plowed and thoroughly fitted to receive the plants.

Plant mainly only those kinds that appear to succeed in the immediate locality, testing newer ones in a small way. The varieties best suited for one set of conditions may be failures elsewhere.

Red raspberries are usually propagated by transplanting the numerous suckers which come up freely around the original hills. Black raspberries are increased by rooting the tips of the nearly mature canes in late Aug. or early Sept. The ends of the canes are covered lightly with earth, and by late fall a large mass of fibrous roots will be formed with a well-developed crown. Varieties of purple raspberries are hybrids, produced by crossing red and black raspberries and some of them may be propagated either by using suckers or by rooting the tips of the canes. Blackberries do not sucker as freely as the red raspberries. These suckers have but few fibrous roots and as a rule do not make such good plants as those started from cuttings of the blackberry roots. The roots may be dug in the fall, cut into two or three inch lengths, stratified over winter and sown in nursery rows in the spring, and most excellent plants are usually obtained after one season's growth. Only strong, healthy plants should be selected, and it is often an advantage to choose these from a younger plantation rather than from an old bed, the plants of which may have deteriorated in vigor and may be infested with various insects and diseases.

Blackberries and red raspberries may be set either in the fall or in the early spring. If set in late Oct. or early Nov., the rows should be plowed up to, making a back furrow along each row of plants. This will be a great protection against winter injury. The earth should be taken away from the hills as soon as the ground is in working order in early spring. Such plants, as a rule, start into growth earlier than those set in the snring. These plants should be set as deep, or slightly deeper, than they were in the original beds. Black raspberry plants and the purple kinds rooted from the cane tips should be set in the spring instead of the fall, not covering the crown too deeply, and spreading the roots in a circle about the centre of the crown. It is an advantage to set the plants in the bottom of a shallow furrow, filling in as the plants develop. Under these conditions they withstand drought better and the canes are not so easily blown over by the wind.

The distance apart of rows and of plants depends on the system of cultivation, the varieties, the natural richness of the ground and the location. In general the plants should not be crowded. Red raspberries may be set closer than black raspberries, and blackberries should be set the farthest apart. These distances may vary from 3 x 6 ft. to 4 x 8 ft., depending on conditions.

The ground should be kept well cultivated and the plants hoed as occasion requires. In young plantations, if the plants have been set properly, cultivation may be given both ways thus reducing the expense of keeping down the weeds. The cultivation should be shallow as the roots lie near the surface. On heavy clay soils it may sometimes be desirable in some seasons to plow early in spring, following with the cultivator till fruiting time. During the picking of the fruit there is little opportunity to cultivate, but the ground should be thoroughly stirred as soon as the harvest is over. If desirable a cover crop may be sown in late Aug. or early Sept.

During the first 2 years it is not always necessary to give the land solely to the berry plants. Potatoes, cabbages, strawberries, etc., are often grown with advantage between the rows, so that a considerable income from this source may be obtained before the berry plants fully occupy the ground.

Summer pruning is not generally practised with red raspberries, but may often be done with advantage to black raspberries and blackberries. It consists in pinching or cutting off the tender ends or tips of the new shoots at a height that may vary from 18 inches to 24 or even 30, the blackberries usually being pinched somewhat lower than the black raspberries. The result of this pruning is the formation of rather low stocky plants with numerous lateral branches which will not require a trellis. As the young plants do not all develop at the same time it is necessary to go over the plantation several times in order to pinch the growth at the proper height.

The canes growing one summer, bear fruit the next season and then die, while new canes develop each year for the succeeding year's crop. Frequently the canes which have fruited are allowed to remain until the following spring before removal, but better results are usually secured by cutting them out and burning as soon as the berry crop is harvested. By this method the insects and fungous diseases frequently infesting those canes may be destroyed, and the young canes have more room to develop. Each spring the plants should be gone over, cutting off the weak ends of the canes and thinning out some of the smaller ones where the growth is too dense. From 3 to 5 canes a hill are usually preferable to a larger number.

The winter protection of the plants is largely confined to the colder climates. Blackberries are usually much more tender than raspberries. Winter protection consists in laying down the canes and covering them with a thin mulch of straw and earth.

General Fruit Notes

W. B. Rittenhouse, Beamsville, Ont.

Last season many peach orchards, from overbearing and not thinning, and owing to the dry season, produced an abundance of small, inferior fruit that netted the growers little or no returns. Orchards, properly pruned, sprayed, fertilized, cultivated, and where thinning the fruit was practised, well rewarded the owner for the care and expense spent upon them. Prices for peaches ruled about 20c. a bskt. more than last year. High-grade peaches, properly and honestly packed, always can be sold. Trash is not wanted in any market.

When on a trip to the west, my attention frequently was drawn to the fact that Ont. is injuring her reputation and soon will lose her hold upon the fruit market unless she adopts other tactics. We must grow only those varieties that are adapted to long distance shipping. The Ontario grower must be honest and correct in the way he puts the fruit in the package.

APPLES

For some years, the apples in my orchard were of inferior quality, being infested with worms and scab. The bulk of the crop was No. 2. The orchard had been fairly well cared for. An attempt was made at spraying, but a poor one. Only one application a year was made and with a pump that was not of much use. Last season we used a pump with which we sprayed the orchard 3 times. At harvest time, a cleaner and better lot of apples was hard to find.

A few years ago I visited the largest and oldest-bearing apple orchard in B.C., the Coldstream Ranch. I was much interested in the fine, clean, firm apples that grew and the care with which they were put up in boxes. They were sold f.o.b., at prices that would astonish Ont. growers, to dealers in Calgary, Winnipeg and other western points. That fruit entered the same market as the inferior stuff from Ont. Not only the dealers, but the consumers, had just cause to say unpleasant things of Ont. fruit. Last season, at least, 1 grower in B.C. contracted his entire crop at $1.50 a box, f.o.b. shipping point.

Ont. apples are superior in flavor. If they are put up properly in boxes, they should command as good, and even better prices than B.C. apples. For the western trade, they must be strictly No. 1 or Fancy. In B.C., the acreage adapted for fruit growing is limited. That province cannot supply both home demands and the west. Ont. growers have a grand chance to secure and hold the western market. There is no fear of overproduction in this province.

Our advertisers spend large sums exploiting their goods. If, when you reply to an advertisement in this paper you get an article that is not as represented, notify us and we will investigate the advisability of allowing the advertiser the use of our advertising columns. See our Protective Policy on editorial page.

Evidence of Chief of the Fruit Division

SPEAKING on the Early Apple Trade, before the select committee on Agri. and Colonization of the House of Commons, Mr. Alexander McNeill, chief of the fruit division, pointed out that the percentage of the early apples to the whole Canadian trade with Britain in this commodity fell last year to less than 2%. This was a great drop from nearly 4½% in the years 1904-05. Asked as to the reason of this, the speaker said that it was because the growers and dealers thought that they could not compete with the British growers, particularly when there was a good crop on the other side. It was also due to a peculiarity of human nature that made men averse to adopting changes. Then too there was a lack of confidence in the British market.

Mr. McNeill was questioned as to what accommodation had been afforded for shipping fruit at low temperatures, and answered that iced cars had been provided and also arrangements made for cool compartments on the ocean-going steamers.

"What guarantee has the shipper of the temperature at which these compartments are kept?" asked Mr. Armstrong of Lambton.

"There are the reports of the commercial inspectors on the other side of the water as to the condition of the fruit upon arrival and the thermograph records," answered Mr. McNeill.

Mr. E. D. Smith, of Winona, asked if these cars and compartments were kept at as low a temperature as they should be, to which Mr. McNeill replied that some apples were shipped to Montreal in ordinary cars and tests had shown the centre of some of the bbls. to go as high as 70 to 85 deg. These were placed in the cool compartments on the steamer alongside the bbls. that had come in the cool cars, to the great detriment of the latter.

"Do none of the shippers send their apples in boxes?" asked Mr. Smith.

"I am sorry to say that the fruit growers have not got into the way of shipping in boxes to any large extent," was the reply.

Further discussion on the cold storage question brought out the statement from the speaker that shippers should learn to cool their fruit before putting it on the cars. It should be delivered at the steamer at as low a temperature as possible. Mr. McNeill expressed himself positively in favor of boxes for the early apple trade. "Some tests made at Washington," he said, "showed that it takes nearly a week to cool the centre of a barrel of apples from 75 degrees to 33 degrees. To do the same with boxes requires only two days."

Mr. Smith suggested that steamers should be provided with machinery for cooling fruit, and was informed that that would be possible if the shippers were willing to pay double freight rates.

"But they pay 60% more than ordinary rates as it is," replied Mr. Smith.

Mr. McNeill pointed out that it would be cheaper to cool the fruit at home before starting it on its journey. He emphasized this as a very important point. This, a member pointed out, would involve the necessity of the farmer having cold storage right at hand. Mr. McNeill in reply pointed to the system that is in use at St. Catharines. He thought that there are several points in Southern Ont. where similar cooling stations might be established. He added that the question of cold storage buildings was a technical one, coming under the personal supervision of Mr. Ruddick, and said he believed that Mr. Ruddick will develop a cheap form of cold storage that can be used by groups of fruit growers.

Two important points were then touched on: 1st, that the condition of the fruit at the time it was picked determined in a great degree its keeping qualities, especially in the early varieties of apples, and 2nd, that the secret of success in shipping fruit was to cool it at the start and follow it up with cool transportation facilities all the way to the market.

Mr. McNeill called attention to the fact that early fruit needs more care in picking than the later varieties. Unlike them it cannot be picked all at once. The fruit that is ready for shipping has to be selected first and the rest allowed to get into the right condition. Attention was called to the fact that in regard to a steady supply of early apples, Canada is very fortunately situated. Early in Aug. apples can be shipped from Essex Co. In the latter part of Aug. they are ready along the north shore of Lake Ontario. In the beginning of Sept. they can be shipped from the lower part of the St. Lawrence valley, and from the valley of the St. John River late in Sept. This gave a steady supply and if the trade were properly handled would bring the apples into favor with the importers.

Turning to another matter Dr. Sinclair asked if the Gravenstein family of apples were failing in Ontario. Mr. McNeill replied in the affirmative, stating that he thought that the difficulty might be overcome if the growers learned to top-graft the variety on a hardy stock.

A GREAT WASTE

Mr. McNeill quoted figures to show that the total production of apples last year was in the neighborhood of 12,000,000 bbls., and that the exports from the whole of the Dominion during the same period were but 1,500,000 bbls. Supposing that 1,000,000 bbls. were evaporated and two or three million bbls. more used at home there would be still a large quantity to be accounted for.

"They are fed to domestic animals," said one of the committee.

"I should consider that wasted," said Mr. McNeill.

The most natural and profitable outlet for this fruit, he averred, was the manufacture of it into jams and jellies, and evaporated fruit. In this, Canada might take a lesson from the U.S. Canada's exports of evaporated apples last year, he stated, were 3,500,000 lbs., equal in value to $212,000. Apples in bbls. exported amounted to 4,000,000 bbls. The U.S. exported a little over 4,000,000 bbls. of green fruit and 27,852,830 lbs. of evaporated apples.

"Where do they find a market for it?" was asked.

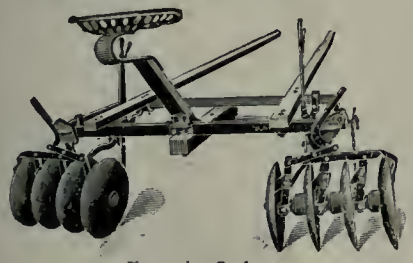
"In Europe; a large proportion of it going to Germany," replied Mr. McNeill.

"But the German market is closed to us, is it not?" questioned one M.P.

"Yes."

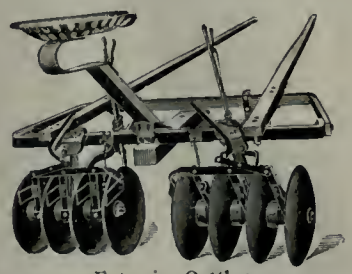
Mr. McNeill then told his audience that in the best commercial opinion a good market could be found for Canadian cider in Gt. Britain. The expert cider manufacturers of that country could find a valuable use for it for blending with the home variety. Before the fruit now going to waste can be utilized he claimed that there will have to be a greater diffusion of knowledge among the growers.

BISSELL'S



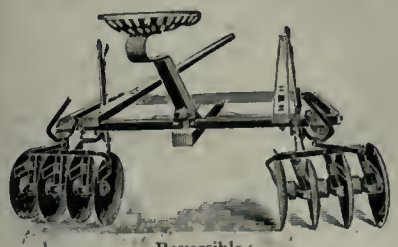
Extension Inthrow

ORCHARD



Extension Outthrow

HARROWS



Reversible

Built in sizes for 1 or 2 horses. Immense capacity for hard work and thorough cultivation.

ADDRESS

T. E. BISSELL, Dept. N, ELORA, ONT.

Mention The Canadian Horticulturist when writing.

New Brunswick Fruit Growers' Association

THE annual meeting of the N.B. Fruit Growers' Assn. was held at Fredericton. There was an exhibition of apples grown by the members which was fairly representative of the principal varieties grown in the district. The task of judging these was entrusted to Prof. Sears, the horticulturist of the Agri. College at Truro, N.S., and Mr. A. McNeill, of the Fruit Dept. at Ottawa.

Pres. J. C. Gilman, of Kingsclear, N.B., said that, as a whole, the N.B. growers had fared as well last year as those of other provinces. Small fruit growers had found strawberries to be their most reliable crop, and with the good prices obtainable, much encouragement was afforded them to increase their output. Other small fruits had been variable, and the apple crop turned out somewhat uneven. Insects were numerous and active, giving much trouble. The conference of fruit growers at Ottawa had brought together representatives of the fruit growing interests in the various provinces. Amongst the most important work accomplished was the establishment of 4 grades of apples, the law to define the different grades. This would give one system of grading, one system of marking, and with a standard barrel and box make it possible for a buyer to know what to expect both in quality and quantity. Under these circumstances Canadian fruit should soon get the reputation its merits warrant in the markets of the world. It was for the growers of N.B. to ask themselves what they could do towards supplying the ever-increasing demand for good fruit. How were they situated with regard to production, cost of package, facilities for handling and transportation? There were within less than 100 miles of St. John thousands of acres of land well adapted to fruit growing, and the Government was giving valuable aid in various directions. The Federal Government proposes to aid cold storage. Local markets were not fully supplied, and even if they were,

St. John gives regular communication with foreign markets. The question of over-production was a receding one; discriminating buyers were to be found everywhere, buyers who wanted the best and were willing to pay for it, and such conditions were most encouraging. One of their most pressing needs was a more practical knowledge of grading and packing fruit by the most modern and expeditious methods. Practical lessons given by capable men at exhibitions and association meetings would do much towards educating the fruit grower in that most important part of his work. He suggested that the Minister of Agri. should be requested to include fruit amongst the crops of which statistics were required. In conclusion he asked them as producers to do their part and do it well, when he was sure that they would find fruit growing not the least profitable part of their farm work.

Mr. McNeill, of the Fruit Division, Ottawa, said that he was glad to find that fruit growing, particularly apples, was on the increase in the province. There was ample room for other fruit, however, especially small fruit; but to his mind apple growing would produce the largest returns of any. Fruit growers themselves might do a great deal to induce other farmers to embark in the industry, and by increasing the production they would be able to enlarge their markets. The individual who had not been reared "in the shade of the old apple tree" had missed the best part of his bringing up. The chief point to be considered was, could a market be found for the crop? His answer to that was, most undoubtedly there could, and if properly managed all the produce could not be sold, and sold to advantage. In some parts of Ont. people complained that they were sick of the business; they could not sell their produce, so had to feed it to the hogs. This was the substance of several reports received by his Dept. These people, however, were chiefly the small growers who had but limited opportunities of disposing of their produce, and so waited for buyers. Large growers did not find this the case, as they found a ready market. When a dealer knew where he could rely on finding a good supply of saleable fruit, he never failed to go there. The more apples produced, the better the market and the better the price. The English market was always open and could never be overstocked; in fact, if the Canadian growers laid themselves out to do so, they could capture that market. There were too many varieties grown in Eng. and dealers could never depend on obtaining a further supply of any particular variety, whilst in Canada they were devoting their attention chiefly to certain specified varieties. As to making apple growing pay, there could be no manner of doubt on that point. In an acre of land, valued on the average at $60, an outlay of $10 would find the trees, and with $3 more for the cost of planting, there was a total expenditure of $73. The care of the trees for the next 4 years would cost $10 a year, but this might be offset by the value of the by-crops grown between the rows. But, anyway, the outlay for the 4 yrs. would not exceed $40, and with $10 more for fertilizer would total up to $123; but to be on the safe side, say $150. At the age of 4 yrs. the trees would begin to bear a little, and from that time on the orchard would pay for itself. If this was continued till the tenth year, the trees would then be in full profit.

The average return an acre, Mr. McNeill claimed, according to the published reports received by his division, was about 80 bbls., and that at the moderate price of $1 a bbl. showed rather more than a reasonable profit on an outlay of $150. At 10 yrs. of age, a tree should be worth $10, and therefore the 50 trees which a 1 acre orchard should contain, would be worth $500, and this should be a pretty strong argument in favor of the orchard. No one starting apple growing as a commercial pursuit should plant less than 5 acres, as the labor involved was not justified if only growing apples on a small scale. With reference to the crop grown between the trees, some sorts were liable to damage the trees, and care should be exercised in this respect. Dairying was, perhaps, the best supplementary branch of farming to take up with fruit culture.

If anyone was contemplating going into orcharding with the idea of shirking the spraying part of the business, then his advice was most emphatic, "Don't." Spraying was, if possible, of even more importance than cultivating; spraying was the one thing that might not be neglected. By following a simple routine of spraying, a grower could not fail to have successful results. Use poisoned · Bordeaux mixture 3 or 4 times a year. Spray once before the blossoms open, but be careful not to spray when the orchard is in bloom. Spray again just after the blossoms fall, and then once more when the little apples were about the size of green peas. By these means, 9-10 of the insects which are detrimental to the orchard will be destroyed. The apple scab and the codling moth were 2 of the worst enemies, but if these were destroyed then about 90% of the other pests would go with them.

The speaker urged on his hearers the importance of careful grading and packing of the fruit, which often has much to do with the satisfactory sale of the fruit. In conclusion he said that there was no necessity for any one to be discouraged; any intelligent man could become a successful orchardist, as by buying a good book on the subject and carefully and thoroughly mastering the advice given, he would find his knowledge growing faster than

The Place To buy First Class Trees

Eight Hundred Acres Established a Quarter of a Century

BELOW are some of the varieties which can be furnished in large quantities for Spring planting. All trees strictly first class, clean and healthy.

PLUMS

Abridged List of the Best Varieties on Hand

2500 Abundance	1600 Bradshaw	2500 Burbank
500 Diamond	1000 Emerald	500 German Prune
3000 Lombard	2000 Monarch	500 Niagara
1600 Purple Egg	1000 Gages	1000 Damsons
9000 Reine Claudes		900 Wickson, etc.

A large stock of the leading varieties of Apples still on hand—Baldwin, Ben Davis, Fallawater, Gravenstein, Gano, Stark, Ontario, etc. 250,000 Spruce in all sizes from 9 inches to 3 feet. Write for information and prices will be cheerfully furnished.

E. D. SMITH

HELDERLEIGH NURSERIES WINONA, ONTARIO

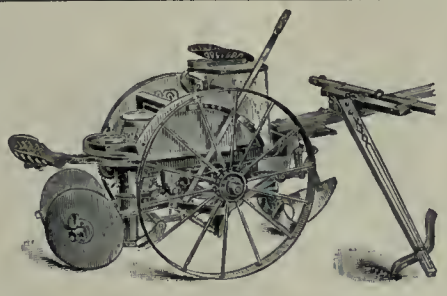
Mention The Canadian Horticulturist when writing.

his trees. He (the lecturer) was not preaching one method and practising another; he was simply advising others to do exactly what he was doing himself, and unless he was perfectly satisfied that what he was doing was right, he would not waste his time and money on the pursuit. Moreover, it was just as much to the interest of dwellers in the cities to do all they could to encourage fruit growing, as there could be no doubt that every extra orchard meant an additi nal family, and every extra family in the neighborhood meant more money circulating. Referring to the exhibits, he had never seen finer apples grown anywhere, and if they were typical specimens of N.B. grown apples, no grower in the province need have the least fear as to getting rid at very remunerative prices, of as many as he could produce.

Prof. Sears, of the Agri. College, Truro, then gave an address upon the "Care and Cultivation of an Orchard." He thought that those who had heard Mr. McNeill could hardly come to any other conclusion than that an orchard was a paying concern. He fully agreed with him that it was useless to embark in the apple growing business on a small scale. The 5 acre orchard was as small as could be made profitable; but properly attended to there was no branch of farming that paid like it. His own idea was that 10 acres was as small an area as it was advisable to plant, and in an orchard of this size a grower should have at least 6 different varieties, as in the case of the failure of any one or more variety, the others were there to fall back on. The cream of varieties to his mind were the Duchess, Wealthy, Alexander, Wolfe River, Fameuse, Mackintosh, Dudley or North Star, and the Baxter. He would pick 6 out of this lot and plant his 10 acre orchard with them.

In embarking on apple growing, the 1st consideration should be the site of the orchard. There were 3 points to be considered in doing this, and these were soil, slope and shelter. The question of soil was perhaps the least, and shelter the most, important. Apples, if properly looked after, usually will grow on any kind of soil, but they do best on a good clay loam, if such was to be bad. As to slope, it was better to have the slope from the sun rather than towards it, as a northward slope would guard against the heaviest winds which usually came from the south-west. The other important matter was that of shelter. If a site could be obtained which was sheltered by woods or any large growth of natural timber, it was astonishing how an orchard would thrive under such circumstances. In planting, he thought the proper system to adopt was to plant strong, vigorous trees of a hardy variety and, when they were fairly started in growth, then re-top them with scions of the particular variety it was desired to grow. This would result in hardier trees than if the tree of the desired variety had been planted at first. It was most essential to plant only the very best stock of the kind, and if it was to be got, get it from a local grower, as for various reasons, it would not pay the latter to sell rubbish to be planted in his own district, and, besides, trees bought locally need not be out of the ground for anything like so long a time as would be the case if bought from a distance.

Laying off the orchard required the greatest care, particularly in the matter of laying out the trees to see that they were in straight lines. This might seem an easy matter, but it was surprising what a difference in the appearance of the rows a few inches out of the straight would make. He feared Mr. McNeill's estimate of $3 an acre would have to be considerably increased unless labor could be obtained for very much less wages than he had been accustomed to pay. In planting, too, never put manure of any kind near the roots. If the ground is such as to require some manure, then simply spread it lightly on the top of the soil when the roots were filled in. It was a good plan, also, to wrap the stems of the trees with some sort of covering in the fall; newspapers would do, but building paper was better. These saved the stems from being knocked about, from the attacks of mice and from sunscalds. It should be continued each year until the tree was 5 or 6 years old. He had no hesitation in saying that if any one went to



Iron Age Potato Planter

IMPROVED ROBBINS

THE ONLY POTATO PLANTER THAT DOES PERFECT WORK

(See article published in this issue)

Bateman Manufacturing Company

Box 516 - GRENLOCH, N.J.

W. A. BROUGHTON, Sarnia, Agent

Mention The Canadian Horticulturist when writing.

Dominion Line

ROYAL MAIL STEAMSHIPS

PORTLAND TO LIVERPOOL

*DOMINION . . . . . April 6th
KENSINGTON . . . . . " 13th
*SOUTHWARK . . . . . " 20th
*CANADA . . . . . " 27th

*These Steamers carry all classes of passengers

MONTREAL TO LIVERPOOL

OTTAWA . . . . . May 4th
KENSINGTON . . . . " 11th

PORTLAND TO BRISTOL
(Avonmouth Dock)

MANXMAN . . . . . April 18th

MONTREAL TO BRISTOL

ENGLISHMAN . . . . May 4th
TURCOMAN . . . . . " 18th
MANXMAN . . . . . " 26th

Favorite Steamers for all kinds of perishable cargo having fan ventilation, cold storage, and cool air chamber.

GEORGE W. TORRANCE,
Freight Agent . 28 Wellington St. E., TORONTO

M. A. OVEREND, J. W. WILKINSON . . . . . Travelling Freight Agents

DOMINION LINE—PORTLAND, Maine.

Mention The Canadian Horticulturist when writing.

"TARGET BRAND"

Scale Destroyer

IS NOW THE PEER OF OIL SPRAYS

FOR SAN JOSE SCALE, OYSTER-SHELL BARK-LOUSE APHIS AND SIMILAR PESTS

Destroys both insects and eggs. Is NOT in the least injurious to trees, etc. Does not separate while spraying, and CAN BE instantly PREPARED right IN THE FIELD.

JORDAN HARBOR, ONTARIO

"Having had occasion to use a trial can of your 'Target Brand' Scale Destroyer on a tree that had the scale as bad as a tree could have it, I gave it one application last spring, and have found it a success after a thorough examination. I am convinced that it will do the work, as I cannot find a live scale left."—ENOS J. FISHER

(Mr. Fisher has bought a second supply to use on the trees which surrounded this one.)

We have others still stronger than the above. See previous issues.

W. H. BRAND

Canadian Representative and Salesman

Jordan Station, Ont.

Mention The Canadian Horticulturist when writing.

FOR SALE AND WANT ADVERTISEMENTS

Advertisements under this heading inserted at rate of one cent a word for each insertion, each figure, sign or single letter to count as one word, minimum cost, 25 cents, strictly cash in advance.

LANDSCAPE GARDENING—Plans drawn to scale for laying out and planting parks, cemeteries, public or private grounds. Work supervised C. Ernest Woolverton, landscape architect, Grimsby.

GARDENER seeks situation in private place. Fifteen years' experience under glass and outside. Age thirty. Good references. J. Bennett, 804 Gerrard Street, Toronto.

WHITE LEGHORNS, "Standard bred layers," eggs per setting 75c. BLACK MINORCAS, top quality, setting $1.50. BELGIAN HARES, fancy stock, either sex, 50c. A. WIDMER, Brampton.

FOR SALE.—Niagara Power Sprayer, hundred gallons, with tower cart, five-row crop sprayer, tank pump, complete outfit. Used one season. F. Fairbrother, Oakville, Ont.

Orchids Now is the time to place your orders for Spring delivery of freshly imported Orchids. **Our prices are very low, quality considered.** Also large stock of established Orchids on hand

CARILLO & BALDWIN
SECAUCUS, N.J., U.S.A.

work in an intelligent manner and on the lines he (the speaker) had laid down, he need have no fears as to the ultimate success of his venture.

INJURIOUS INSECTS

Mr. T. A. Peters, the Deputy Minister of Agriculture, desired to call the attention of the meeting to certain caterpillars which might possibly be found about the orchard and other parts of the farm in the near future. They were the caterpillars of the Gipsy moth and the Brown Tail moth. This was a pest which had apparently started in Massachusetts, and was gradually working its way north. It had already reached the State of Maine, where they were spending thousands of dollars annually in trying to destroy it. The mature caterpillar of the Gipsy moth had a dusky or sooty colored body. Along the back, counting from the head, which is marked with yellow, is a double row of blue spots followed by a double row of red spots. This double row of spots almost invariably might be seen very distinctly on the back of a Gipsy moth caterpillar which had attained the length of 1½ inches or more. There were 5 pairs of blue spots and 6 pairs of red spots. Until the caterpillar grows to the length of 1½ inches it does not always show these pairs of spots very distinctly. The mature caterpillar, not infrequently, attains the length of 3 inches. This caterpillar attacks all kinds of trees, both hard and soft woods, and if allowed to get a foothold, will not only cause great damage to fruit growers, but will cause serious damage to the lumbering industry.

The caterpillar of the Brown Tail moth feeds only on fruit trees and the different species of hardwood trees. When well grown it is of a bright tawny or orange brown color, marked along the sides of the body with a conspicuous row of pure white spots, and having 2 bright red spots at the lower end of the back. Wherever this insect comes in contact with human flesh, it produces a most painful nettling, and so severe is this affection, that in many cases people have been made seriously ill by it. The female is a very strong flyer. The female of the Gipsy moth cannot fly; and that species is spread mainly by being carried on different vehicles. If any of the members should happen to come across a caterpillar which appeared to answer either of these descriptions, he would be glad to have it packed and forwarded to him.

Gardeners in the Old Country are excited over the introduction of American gooseberry mildew into that country. It got a start through the importation of a few American bushes into Ireland.

To eradicate San Jose Scale from your orchards, try

CARLSON SPRAY MIXTURE

It has no equal. It is easily applied, as there is no thick substance to clog up when spraying. It improves the growth of trees. References from fruit growers who use nothing else furnished on application to

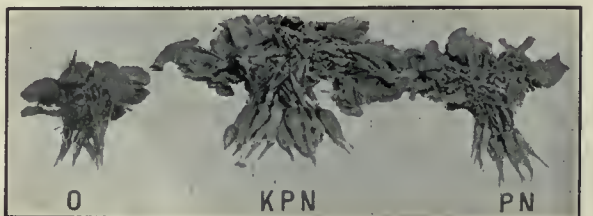
JOHN CARLSON, St. Catharines, Ont.
P.O. Box 111

RUBBER STAMPS—BRASS STENCILS
For Fruit Growers and Packers
THE SUPERIOR MFG. COMPANY
TORONTO, CANADA

POTASH
for FIELD, GARDEN, ORCHARD

POTASH promotes maturity and counteracts the effect of an excess of nitrogen in the soil produced by a too heavy application of farmyard manure or from other causes. POTASH is a direct plant food and is indispensable.

Fertilizer Experiment on Radishes by Otto Herold, Waterloo, Ont., 1906



Treatment:	Unfertilized	With Potash	Without Potash
Result:	Non-saleable	$200.00	$20.00 per acre realized

POTASH in the highly concentrated forms of Muriate of Potash and Sulphate of Potash is obtainable of all leading Fertilizer Dealers. Pamphlets treating of the cultivation and fertilization of all farm crops will be sent free on application.

The Dominion Agricultural Offices
of the Potash Syndicate
1102, 1105 TEMPLE BUILDING, TORONTO

Mention The Canadian Horticulturist when writing

OUR SEED, BULB AND PLANT BOOK FOR 1907

FREE

We want you to receive a copy of our new book. It contains:

A Selected List of Vegetable and Flower Seeds, with a short, concise description of each.

Asparagus, the Best Varieties for home use, both seeds and plants.

Bulbs for Spring Planting, will bloom during the summer.

Annual Flower Seeds that you can plant in beds and along the pathway and that will bloom the first year.

Lawns, the proper seed to use to produce an excellent lawn.

Spraying Implements for the home garden.

Insecticides, the proper kinds to use to kill the various insects; also what to use for blight.

We will mail you the book **FREE,** as we wish you to see it before making up your order. It will be of assistance to you.

NEW PERENNIAL—"STENANTHIUM ROBUSTUM"—One of the best new introductions. **NEW CLEMATIS MONGOLICA**—A new early white flowering variety. For full description of above send for our Catalogue of hardy plants.

DUPUY & FERGUSON
SEEDSMEN——MONTREAL

Mention The Canadian Horticulturist when writing

Ontario Vegetable Growers Plan Their Year's Work

A meeting of the directors of the Ont. Vegetable Growers' Assn. was held in Toronto, March 5. Those present were Messrs. F. F. Reeves, G. Syme, Jr.; A. Shuter, R. Lankin, J. Rush and T. Delworth, of the Toronto branch; John Dougal, of Tecumseh branch; A. E. Dufor, of the Ojibwa branch; T. Wistow, of the London branch; S. A. Blunden, of Sarnia branch; A. M. Malcolm, of Scotland branch; A. McMeans, of Guelph branch; R. H. Lewis, of Hamilton branch; R. J. Bushell, of Kingston branch, and the sec-treas..

The sec.-treas. announced that since the last meeting, branches had been formed at Ojibwa and Guelph, and that the growers around London had decided to affiliate with the Ont. Assn. Reports of the work done by the various branches were presented by the different delegates and were of a very encouraging nature. The election of officers resulted as follows: Pres., R. J. Bushell; 1st v.-pres., T. Wistow; 2nd v.-pres., R. H. Lewis; sec.-treas., H. B. Cowan; executive committee, F. F. Reeves, Geo. Syme, Jr.; R. H. Lewis, T. Delworth, R. J. Bushell and H. B. Cowan.

A further discussion on the tariff situation took place. The conclusion reached was that everything possible had been done to secure a more favorable tariff, and that as the efforts had largely failed, the Assn. should endeavor again to have an appraiser appointed. The executive committee were instructed to have a deputation wait on the Dom Govt. to urge the appointment of an appraiser for Ontario. It was decided to engage crop correspondents during 1907, as had been done during 1906. The executive committee was authorized to again purchase bulletins from the various U.S. Expt. Stations that might be of interest to the members of the Assn.

Mr. Delworth presented a report of the committee that had attended the meeting of the Expt. Union at Guelph. The report stated that the committee had decided that the experiments conducted by the Expt. Union would be of practically no value to market gardeners, as they were not conducted by experienced vegetable growers. The committee recommended that the Assn. should endeavor to conduct a few experiments on its own account in connection with the different branches.

The executive committee was requested to find what work for the benefit of the vegetable growers is to be conducted at the Agricultural College and Experimental Farm this year.

It was decided to offer prizes for competition among the secretaries of the branch assns., to see which of them could present the best reports at the end of the year upon the work done by their branches, including the holding of the

THE "FRIEND" SPRAY NOZZLE

SENT POSTPAID FOR $1.55

It has no horns, no hooks, nothing to catch on limbs, no dripping, no clogging, yet makes the finest mist spray. Remember, only one does the work. Our latest improvement makes the finest spray with 30 to 40 pounds pressure. You cannot afford to bother away your time with awkward, leaky, annoying, hose-breaking shut-offs, when you can get the thing you really need and want. Our pretty catalog free for the asking, showing spraying outfits, hand and power, that are real "Friends."

"Friend" Mfg. Co., Gasport, N.Y.

Mention The Canadian Horticulturist when writing

NO MORE BLIND HORSES For Specific Ophthalmia, Moon Blindness and other Sore Eyes, BARRY CO., Iowa City, Iowa, have a cure.

KIL-O-SCALE

The original, most popular and most effective SCALE DESTROYER on the market. KIL-O-SCALE combines the two infallible remedies—SULPHUR AND PETROLEUM. Beware of Oil Solutions that will SEPARATE, endangering the life of the tree. Do not be persuaded to buy inferior imitations. Write for circular, telling what users have to say about KIL-O-SCALE. Our 1907 Seed and Implement Catalogue free. Write for it.

GRIFFITH & TURNER CO., 207 N. Paca Street, Baltimore, Md.

THE WILLIAMS STRAWBERRY

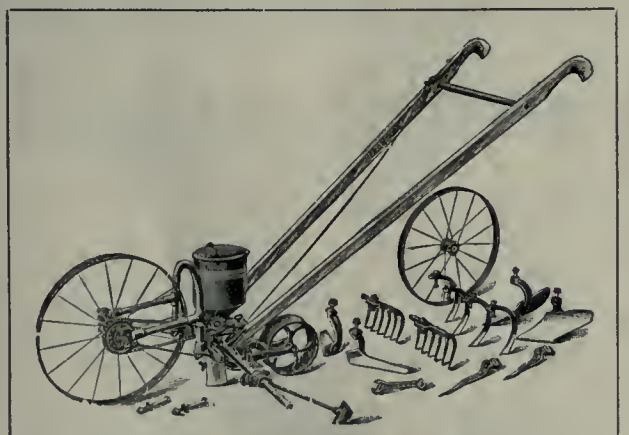
The Great Commercial Strawberry of the Niagara District

It is quite safe to say that more Williams Strawberries are grown in the Niagara District than all other varieties combined. It is certainly the kind for best results over a wide range of territory and adapts itself to a variety of soils. Be sure and get plants of strong vitality and true to name. I am now booking orders for Spring shipment at $4.00 per 1,000, 50c. per 100. Can also supply limited quantities of other standard sorts at reasonable rates. Special quotations on large quantities. A limited quantity of Gold Coin and Nerolin Beauty potatoes for Spring planting.

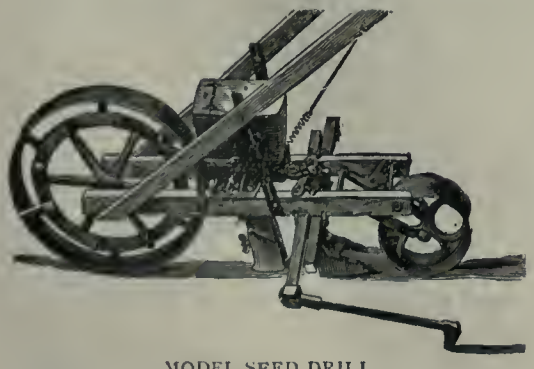
THE CARLETON FRUIT FARM

WM. H. BUNTING ST. CATHARINES, ONT.

Mention The Canadian Horticulturist when writing



No. 6—"IRON AGE" COMBINED HILL AND DRILL SEEDER



MODEL SEED DRILL

"IRON AGE"

GARDEN IMPLEMENTS

The No. 4 "Iron Age" Combined Double Wheel Hoe and Drill Seeder. Price - - - - $10.50

No. 5 "Iron Age" Drill Seeder. The foregoing implement as a seed drill only. Price - - - $8.00

No. 6 "Iron Age" Combined Double Wheel Hoe, Hill and Drill Seeder. Price - - - - $12.00

No. 7 "Iron Age" Hill and Drill Seeder. The foregoing as a hill and drill seeder only. Price - $9.00

No. 1 "Iron Age" Double Wheel Hoe, cultivator, rake and plow combined. Price - - - - $7.50

No. 3 "Iron Age" Plain Double Wheel Hoe, with side hoes only. Price - - - - - - - - $5.00

The New Model Seed Drill. Price - - - $8.00

COMPLETE CATALOGUE "IRON AGE" GOODS ON APPLICATION

J. A. SIMMERS

TORONTO, ONTARIO

Mention The Canadian Horticulturist when writing

GREGORY'S SEEDS

FREE Our catalog is rich with information for the guidance of farmers and gardeners. It has been a great help to thousands—has been the means of turning many a failure into success.
The great variety of vegetable and flower seeds include the best of the old standard and such new kinds as have proved of value by actual test.

GREGORY'S SEED CATALOGUE FOR 1907

J. J. H. GREGORY & SON, Marblehead, Mass.

largest number of and the most successful meetings, the purchase of supplies on the co-operative principle, and of other work of a similar nature.

Messrs. Shuter, Rush, Malcolm and Reeves were appointed to act as the representatives of the Assn. on the board of management of the Ont. Horticultural Exhibition.

IMPORTANT WORK

A meeting of the executive committee of the Assn. was held in Toronto, March 15. Those present were: Messrs. F. F. Reeves, of Humber Bay; R. H. Lewis, of Hamilton; T. Delworth, of Toronto, and the sec., H. B. Cowan. Mr. R. H. Lewis was elected chairman. The president of the Assn., R. J. Bushell, of Kingston, and T. Delworth, of Toronto, were appointed to act with the members of the Ottawa branch in laying the matter of the appointment of an appraiser to set a value on the vegetables imported into Ontario, before the Dom. Govt. It was decided to ask the branch assns. to write and request their members in the House of Commons to act on this deputation when it waits on the Minister of Customs.

As a means of securing capable speakers for the meetings of the branch assns., it was decided to invite the branch assns. to arrange for some of their members to address their meetings on any of the following subjects: onions, potatoes, tomatoes, celery, cabbage and cauliflower, and greenhouse and hotbed work. Later the branches will be expected to furnish the names of their best speakers on these subjects to the provincial executive in order that the executive may arrange to have these men address the meetings of the other branches. It was decided that no speaker should be sent out until he had first addressed meetings of his own branch, and that the names of the speakers must be furnished to the provincial executive by Dec. 15, 1907, in order that arrangements may be made to have the speakers from the branches attend the meetings of the other branch assns. during Jan. and Feb., 1908. Later the speakers will be requested to furnish a letter outlining their addresses, together with the questions most frequently asked them and their replies thereto, that the same may be printed in the annual report of the Assn.

A MEMBERSHIP COMPETITION

It was decided to conduct a membership competition and to offer three prizes to the secretaries of branches sending in the largest number of

Northern Grown Trees

Apple, Pear, Plum, Cherry, Peach, Nut and Ornamental Trees. Small Fruits, Roses, Shrubs, cheap. Specialties: Wismer's Dessert Apple and Mammoth Prolific Dewberry.
Send for free Catalogue—it tells the whole story.

J. H. WISMER, NURSERYMAN PORT ELGIN, ONT.

Small Fruit Plants

GOOSEBERRY, Red, White—CURRANTS, Red, White, Black—RASPBERRY, Red, Yellow—BLACKBERRIES—STRAWBERRY-RASPBERRY—GRAPEVINES, Campbell's Early, Eaton, Worden, Moore's Early, Salem, etc., all hardy sorts—STRAWBERRY PLANTS—HOUSE PLANTS—ROSES—RHUBARB AND ASPARAGUS ROOTS

ORDER EARLY

WILLIAM FLEMING
NURSERYMAN
P.O. Box 54 Owen Sound, Ontario

Horse-Power Spramotor

FOR ORCHARDS, VINEYARDS AND ROW CROPS

Our Patent Automatic Regulator stops the machine at 125 lbs. pressure starting again at 100 lbs. pressure.
Automatic Nozzle Adjuster, insuring correct direction of spray.
Automatic Nozzle Protector, guaranteeing nozzles against clogging.
Everything under control of driver without stoping.
Is used and recommended by the Department of Agricultural.
Send for 86 page booklet O.
Agents wanted.

SPRAMOTOR CO., BUFFALO, N. Y. LONDON, CAN.

FLORAL WORK A SPECIALTY

High Grade Seeds

Graham's Royal Exhibition Asters

Graham's Royal Exhibition Dwarf Nasturtiums

Graham's Royal Exhibition Pansies

Graham's Royal Exhibition Sweet Peas

Anyone interested in real Exhibition strains of above should grow them. One large packet of each 30c. postpaid.
Illustrated Catalogue on application.

GRAHAM BROTHERS
SEEDSMEN AND FLORISTS
53 and 55 SPARKS ST. OTTAWA

Mention The Canadian Horticulturist when writing

Feed Your Land

WITH GOOD MANURE AND GET

GOOD RETURNS

MARCHMENT'S
SURE GROWTH COMPOST
IS THE BEST

Supplied to the Largest Nurserymen and Fruit Growers in Ontario

S. W. MARCHMENT
19 QUEEN ST. EAST, TORONTO
Telephones Main 2841 Residence Park 951

Mention The Canadian Horticulturist when writing

new members on or before Nov. 1, 1907. It was further decided to offer three more prizes for competition among the members of the branch assns. for new members.

The idea of the assns. undertaking experimental work in vegetables in connection with the branch assns. was abandoned, owing to the great expense that would be involved and to the lateness of the season, as well as because it was felt that such work was somewhat out of the province of the work of the Assn.

CANNING FACTORIES

It was pointed out that a large number of vegetable growers in Ont. grow vegetables for the canning factories and that but little is known of the extent of this industry, and where these factories are located. In order that more information might be secured, it was decided to make a special effort to secure as complete information as possible in regard to this matter. Mr. C. C. James, Deputy Minister of Agriculture, was consulted, and stated that the dept. of agric. has been endeavoring to secure information of this nature for some time, and has found it very difficult to do so owing to the fact that the management of many factories has refused to allow the representatives of the dept. to visit the factories. The dept., however, has secured considerable information which is valuable and has a complete list of the factories. Mr. T. Delworth and the sec. were authorized to see Mr. James and ascertain just what information the dept. has on hand and to report at the next meeting of the executive committee, as to the best steps to be taken to secure a complete report of the vegetable canning industry of the province. It was felt that it will be a good move on the part of the Assn. to secure some reliable correspondents in every section where there is a canning factory, to give a full report at the close of the season as to the amount of the vegetables grown, and prices paid for them, as well as to give other information of a similar nature, this information to be published early in Dec. and later to be embodied in full in the annual report of the Assn.

THE NIAGARA EXPERIMENT STATION

In compliance with the request of Hon. Nelson Monteith, that the Assn. should prepare an outline of the work that would be of benefit to the vegetable growers, that it would like to have undertaken at the new fruit and vegetable experiment station, to be established in the Niagara District, it was decided to make the following recommendations to the Minister of Agriculture:

(1) That the work should include seed selection, hybridizing, the testing of standard against new varieties of vegetables, fertilization tests, and the testing of seeds to ascertain their germinating powers. (2) That bulletins should be

38 Leading Varieties
of STRAWBERRY and CANE BERRY PLANTS
7 Varieties SEED POTATOES
Illustrated Catalogue Free
JOHN DOWNHAM, Strathroy

Registered in U.S. Post Office

USED IN CANADA 23 YEARS "SLUG SHOT" USED FROM OCEAN TO OCEAN

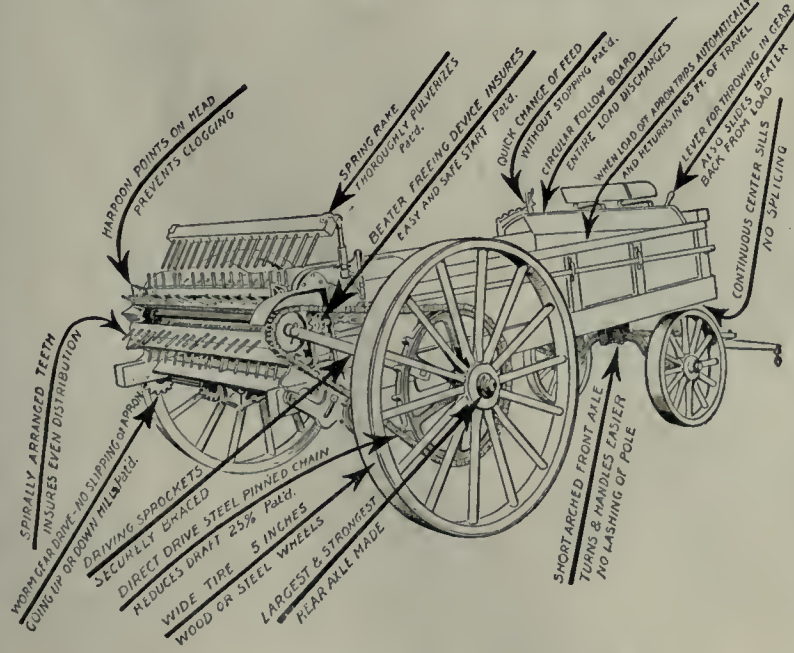
A light, composite, fine powder, easily distributed either by duster, bellows, or in water by spraying. Thoroughly reliable in killing Currant Worms, Potato Bugs, Cabbage Worms, Lice, Slugs, Sow Bugs, etc., and it is also strongly impregnated with fungicides. ☞ Put up in Popular Packages at Popular Prices. Sold by Seed Dealers and Merchants in Ontario, Quebec and Manitoba.

For Pamphlets worth having on Bugs and Blights, send to

BENJAMIN HAMMOND FISHKILL-ON-HUDSON, N.Y.

Mention the Canadian Horticulturist when writing

Manure Spreaders for Vegetable Growers



"SUCCESS", The only Machine that Pulverizes and Distributes Manure Evenly.

ALL the manure you load on the "Success" will be thoroughly pulverized and distributed evenly. By our method of placing the ADJUSTABLE SPRING PULVERIZING RAKE, which makes manure fine or coarse as desired, directly over the axle of the beater, all the manure is thrown against the rake and thoroughly torn to shreds and pulverized. And the TENSION SPRINGS allow all sticks, stones and other hard substances to pass through without injuring machine in slightest.

Because the teeth of the raves of the beater are arranged spirally—not in a straight line—the manure is thrown towards the sides—away from the centre—distributed evenly. You know, the centre of the load is always the highest, and manure would come out more thickly towards centre of beater, forming a ridge, unless teeth were arranged in this manner.

Note the HARPOON TEETH which protect the ends of the beater. These teeth cut the long pieces of straw and grass up—do not allow them to wind around the beater, choke it up and cause it to run hard as is the case with common manure spreaders. They keep the beater of "Success" always clean—make it the easiest-working beater in existence.

No manure spreader is in the same class as the "Success." Drop us a card to-day for our Free Illustrated Catalogue, which describes the "Success" in detail.

THE PARIS PLOW COMPANY Limited

Western Branch WINNIPEG, MAN. PARIS, ONT.

Mention The Canadian Horticulturist when writing.

published at regular intervals, giving particulars of the tests conducted, how they were conducted, and the results to date. (3) That the vegetable growers' assn. should be represented on the board of control of the station. In regard to the work of seed selection, it was decided to recommend that when any varieties of vegetables are brought into a stage of advanced merit, that steps should be taken to have seed distributed to members of the Assn. desiring same. It was felt that the germination tests should be made in Jan., that the results might be published in Feb., so that the growers would be enabled to use them when ordering their seeds for the year. In conclusion, it was decided to recommend that the supt. appointed to have charge of the station should have a knowledge of commercial vegetable growing.

Keeping Hens for Profit

Alfred Andrews, Burlington, Ont.

ED. THE CANADIAN HORTICULTURIST,—The question is often asked: "Is there money in poultry?" It seems to me that Mr. Short, in the January issue of THE CANADIAN HORTICULTURIST gives one of the best answers I have seen. For the past 30 years I have kept some fowls for the supply of our own family and occasionally have sold some of their products. Having kept a strict account of all expenses and sales for year ending Jan. 1, 1907, I give the results:

I had an average of about 50 hens, White Rocks, Barred Rocks and half-a-dozen Brown Leghorns. I kept no male bird as I was only aiming at egg production. We made no attempt at procuring eggs for sitting hens. The total expenditure including food, wire for runs, purchase of 20 pullets for the present season, lumber, etc., was $135.66. The receipts were $179.63, showing balance of profit to be $43.97—not reckoning anything for care and attention or rent.

None of our eggs were sold below 18 cts. a doz., and a certain proportion have sold from 30 to 40 cts. The first two months of this year I sold none for less than 35 cts. and most of them for 40 cts. This includes 2½ cts. a doz. express charge to Toronto. I kept a daily record of eggs laid last year, the entire flock running together. This year, also, I am doing the same—only the record for each flock is kept separately. The average per hen for last year was 105. Last year the daily average number of eggs was 10.55 for the month of January. This year for same month we had an average of 14 daily. Keeping poultry is not for an average man a get-rich-quick business; but, when understood and judiciously carried on there are fair probabilities for a moderate return.

"I am greatly pleased with the get-up and contents of THE CANADIAN HORTICULTURIST. Every issue contains a lot of extremely interesting matter. Especially valuable are the news notes from the various provinces."—Prof F. C. Sears, Truro, N.S.

British Columbia Notes

C. P. Metcalfe, Hammond, B.C.

Among successful and progressive fruit growers all over this western country there is a general concensus of opinion that some form of protection of fruit trees against the ravages of fungous diseases and the depredations of insect pests is necessary, in fact, almost indispensable, and yet there is no detail of orchard work which is more neglected, in B.C. at least.

Unfortunately fruit growing in B.C. in the past, to a very great extent, has been carried on by ordinary farmers, who are so busy with their general farm work in the spring and early summer that the orchard has been neglected. Still another reason why the application of insecticides and fungicides is neglected and has become unpopular amongst many who grow fruits is the inferior character of the appliances used. Until quite recently the province has been flooded with frail, badly constructed and inadequately equipped spray pumps, incapable of generating sufficient pressure to send the spray into the crevices of the bark, or high enough to reach the top branches of an ordinary apple tree.

A fruit grower, to be successful in spraying, should use only the best of materials, and prepare them with the greatest care, as much of the trouble as the clogging of the nozzles and the burning of the foliage, is due to bad materials and careless preparation.

In B.C. we are not troubled with Codling moth or San Jose Scale as yet, so do not use the lime sulphur and salt spray very much.

ORDER NOW

Apple Trees Cherry Trees
Pear Trees Peach Trees
Plum Trees Small Fruits
Shade and Ornamental Trees
Shrubs and Vines

PRICES REASONABLE NO AGENTS

THE DOMINION NURSERIES
Established 1860
THE SMITH & REED CO.
ST. CATHARINES ONTARIO

Let me sell you a
CHATHAM
Incubator
On Time

Do you know there is big money in raising poultry?

Do you know my incubator will pay you a bigger profit than any other thing you can have on your place?

Well these things are true. Thousands of people all over Canada have proved it every year for the last five years.

I want to quote you a price on my Chatham Incubator,—sold ON TIME and on a 5-year guarantee. I want to send you my Chatham book. This incubator book is *free*—I'll send it to you for just a postal card.

It tells you how to make *money* out of chickens.

Chatham Incubators and Brooders will make you money, for a Chatham Incubator will hatch a live, healthy chicken out of every fertile egg put into it, in 21 days.

Will you write for my book to-day? Just say on a postal "Please send me your Incubator Book"—that's all.
Address me personally.

Manson Campbell
President

The Manson Campbell Co., Ltd.
Dept. F59, Chatham, Ont.

NOTE—I carry large stocks and ship promptly from branch houses at Calgary, Alta.; Montreal, Que.; Brandon, Man.; Halifax, N.S.; Victoria, B.C., and factory at Chatham.

IF YOU HAVE APPLES
OR POULTRY TO CONSIGN

we can handle them for you to advantage If apples are in car lots, write us and we can sell them for you f.o.b. your station

THE DAWSON COMMISSION CO. Limited
Cor. West Market and Colborne St.
TORONTO ONTARIO

OUR MODEL INCUBATORS and BROODERS

Are the only PANACEA for failure—past, present and future. Just take a few minutes and read the following two of many hundreds of unsolicited testimonials from our satisfied customers-

Bayham, Ont., Jan. 31, 1907.

I would not be without my incubator for the price of two if I could not get another of the Model Incubators. Have had good success.

I remain yours, MRS. W. MITCHELL.

Orangedale, Nova Scotia, Feb. 11, 1907.

Sirs,—No trouble to run a Model Incubator. I was away from home for eleven hours each day and machine took care of itself, temperature of cellar changing 26 degrees in 12 hours. Temperature of machine did not change in the least, only the last days showed an upward tendency of ½ to 1 degree. Ran machine at 103.

Results from one hatch, 148 good healthy chicks from 178 eggs. There was only one dead chick in the shell, in the lot. Dead germs of about eight days in the rest. My eggs were very dark, making close testing very difficult. Yours very truly, ORANGEDALE, NOVA SCOTIA.

THE MODEL INCUBATOR CO., LTD.
190 RIVER STREET TORONTO, ONTARIO
Mention The Canadian Horticulturist when writing.

Bordeaux mixture is used to combat the bark canker (Gloesporium Malicortis) of the apple, the pear and the apple scab (Fusicladium Dendriticum), and the plum and cherry rot (Monilia Fructigena). To overcome the foregoing fungous diseases, trees should be sprayed at least 5 times a year; once in the fall, once in the winter, twice in the spring, and once in the summer.

The winter spray should be the 4:4 formula, doubled, and the summer spray for plums and cherries the ammoniacal copper carbonate.

In spraying for insect pests, the insecticides are divided into 2 classes: (1) Internal poisons, such as Paris green, London purple, and arsenate of lead, which take effect by being eaten with the ordinary food of the insect; and (2) external irritants, or those which act from the outside, closing the breathing pores, or causing death by irritation of the skin, as kerosene emulsion, quassia chips and whale-oil soap, and resin and sal soda. It is to be hoped that fruit growers and farmers will provide themselves with good reliable spraying outfits and use them diligently, or else abandon fruit growing.

Send us two new subscriptions for THE CANADIAN HORTICULTURIST and one dollar, and we will extend your subscription for a year. For one new subscription, will extend it six months.

Prince Edward Letter

Rev. Father Burke, Alberton, P.E.I.

After a long delay, the government nominated F. G. Bovyer, of Georgetown, to the Island inspectorate. The Island inspector is rather an important official, as his duties constitute both instruction on fruit matters and inspection of fruits in the fall and winter seasons. We, therefore, require a good man, one conversant with the Marks Act, and also able to instruct in the various phases of horticulture.

Complaints have come to me, as president of the P.E.I.F.G.A., that much bad fruit has been imposed upon the community, and that the buyers have no redress because no inspector was available. In January, in company with our secretary, Mr. Dewar, I visited the fruit cellars of Charlottetown dealers. In many cases we found things to complain of, but in others we were glad to notice the honesty and fairness of packing. Some of Sherrington's cooperative packing delighted the eye. The deeper we delved towards the bottom of the barrel, the better we were pleased. Since the appointment of Mr. Bovyer as inspector, we expect to hear less complaints. Commissioner Ruddick informed us that he will do all he can to make inspection thorough. Any com-

ASPARAGUS WANTED

If you will have any Asparagus to sell this Spring write to me at once with particulars. It will be more profitable to sell to me than to any one else. Let me hear from you.

E. C. KIDDER
ST. CATHARINES, ONTARIO
Mention The Canadian Horticulturist when writing.

"PAGE FENCES WEAR BEST"

Made of High Carbon Wire—we'll prove it to you. COILED, not crimped. This makes it still stronger in service. It stays taut. Painted WHITE over heavy galvanizing—rust proof. Experienced dealers to erect it. Leads all in sales—as in merit. Get illustrated booklet and 1907 prices before buying. 209
THE PAGE WIRE FENCE COMPANY, LIMITED, Walkerville, Toronto, Montreal, St. John, Winnipeg

BUY EWING'S SEEDS

BUY YOUR SEEDS RIGHT
EWING'S SEEDS
WILL GIVE YOU BETTER AND BIGGER HARVESTS

WM EWING & CO

Don't buy your seeds from any old source. You cannot tell by their appearance just how good they are
THE ONLY TEST IS THE HARVEST TEST
Buy Ewing's Reliable Seeds
They are giving satisfaction to hundreds of planters and they will do so for you as only THE BEST can. We want you to have one of our '07 catalogue. Write for it now
WM. EWING & CO., SEEDSMEN
142-146 McGILL ST., MONTREAL

A Nice Premium will be given Free to all Readers who Buy Goods from Advertisers.

Knapsack Spramotor

destroys all insects or fungi on potatoes, berry bushes, trees plants or vegetables. Copper tank $15, galvanized $12. Agents wanted. Ask for 86-page treatise K.

SPRAMOTOR CO., BUFFALO, N. Y. LONDON, ONT.

THE "3W" STRAWBERRY

was awarded a silver medal at the St. Louis World's Fair. An unbroken record showing "3W" Strawberry to be the most valuable discovery in the strawberry kingdom during the present century. Free circular and prices. For sale by

E. B. STEVENSON, - PONSONBY, ONT.

Gladiolus Bulbs

Groff's World's Fair Collection
Groff's Pan-Am. Ex. Collection
Groff's New Named Varieties

ALSO AMERICA, PRINCEPS AND OTHERS

CANNAS—A Large Stock of the Best Varieties
DAHLIAS—Many kinds. Write for Catalogue

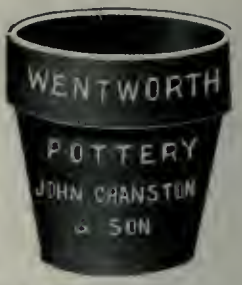
JOHN A. CAMPBELL
SIMCOE, ONTARIO
Mention THE CANADIAN HORTICULTURIST

plaints should be made known to the inspector. After all the discussion and work in the national council of fruit growers last March, and all the agitation during all these years for one barrel for Canada, it appears that no action is to be taken on the resolution that was passed by that representative body, asking that the 96 qt. bbl. be made the standard and only barrel for the whole Dominion. No other question, as the minister knows, exhausted to such an extent the time and ingenuity of the conference, and no more unanimous finding ultimately was made than upon this question. It is too bad, then, for any selfish interest to frustrate the enactment of law upon this matter, but if Hansard is to be believed, something of the sort has already intervened.

On Dec. 14 last, Alex. Martin, M.P. for P.E.I., rose in his place in parliament and put this pertinent query to the minister: "Is it the intention of the Government to bring in legislation to carry out the resolution, passed at the Dominion horticultural council last March with regard to the legal barrel? If so, when and how? If not, why not?" To this, the minister promptly replied: "It is not the present intention of the Government to give effect by legislation to the resolution as the Government has found that those engaged in the fruit industry have diverse opinions on this subject."

In the name of common sense, why gather representative fruit men together from ocean to ocean and ask them to reach a conclusion on the matter, and to reconcile their diverse opinions, and then refuse to take the conclusion that they reached with such unanimity? When will diverse views be more closely knit in any one decision than they were at the conference on this question of a uniform barrel? When will the country be better served by unanimity in its measure than at present?

Wentworth Pottery



Standard Flower Pots, Fern Pans, Hanging Baskets, Cut Flower Jars and all Florists' Supplies.

Mail orders given prompt attention.

JOHN CRANSTON & SON, Hamilton, Can.

Mention The Canadian Horticulturist

PLANT ONLY THE BEST

Fruit and Ornamental Trees, Shrubs, Roses, Grapevines, Berry Plants, etc. Choice Seed Potatoes

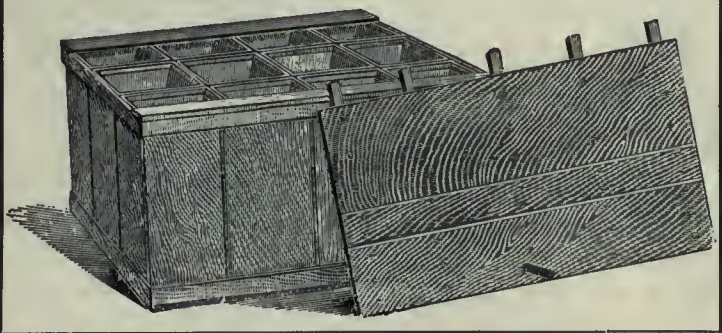
Look at prices in our catalogue. We ship direct to you. No agents. Our prices and stock are O.K. Write us. Now is the best time to order for spring planting, while we are in full supply. Quality governs at the Central Nurseries.

Old customers say Hull's Stock is Reliable. 27th Year.

A. G. HULL & SON, ST. CATHARINES, ONT.

BASKETS

We are Headquarters for all kinds of Splint Baskets



Veneer supplied for the protection of trees from mice during winter

FRUIT PACKAGES A SPECIALTY

SEND FOR OUR PRICES

The Oakville Basket Co. - Oakville, Ont.

Mention The Canadian Horticulturist when writing

ABUNDANT CROPS OF HIGH QUALITY FOLLOW THE USE OF

Tobique Plaster
OR GYPSUM

ALL KINDS OF LAND REQUIRE THIS FERTILIZER

Fruit Growers—Flower Growers and Vegetable Growers

SHOULD USE TOBIQUE PLASTER

SPREAD IT ON YOUR LAWN OR GARDEN
THOUSANDS OF TESTIMONIALS FROM USERS

R. C. Mosher, Manager, Plaster Rock, N.B.

WESTERN AGENT
THE F. G. TERRY CO., 31-41 GEORGE ST.
TORONTO, ONTARIO

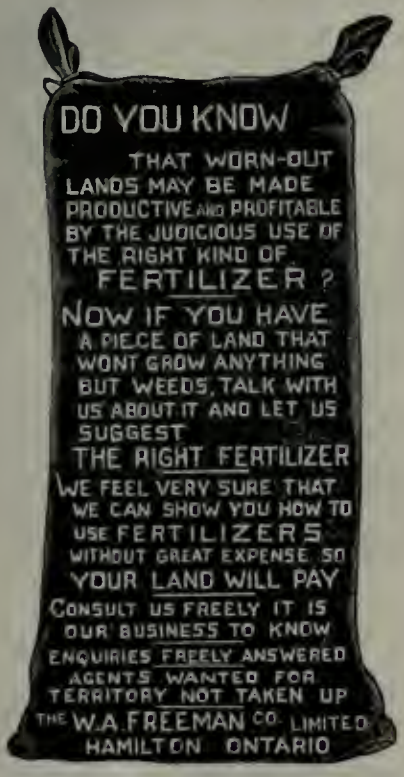
Mention The Canadian Horticulturist when writing

FERRY'S SEEDS

have stood the test for over 50 years, and are still in the lead. Their absolute certainty of growth, their uncommonly large yields of delicious vegetables and beautiful flowers, make them the most reliable and the most popular everywhere. Sold by all dealers. 1907 Seed Annual free on request.

D. M. FERRY & CO., Windsor, Ont.

Profit Producing Fertilizers



We regret very much that the minister has not taken action on this matter. It will be "unfinished business" to be discussed and fought over at the next council. After the last conference, the whole country thought the matter closed, and well closed The minister has said that it is not the present intention of the Government to take action in the matter. May it quickly become so.

High Prices for Apples

Mr. J. S. Larke, Canadian Commercial Agent in N. S. Wales, draws attention to the fact that a shipment of American apples sold in Australia for from 12 to 17 shillings a case of 1 bus. These apples were of a quality that could be supplied by B.C. or by Ont., were it not for the fact that in Ont. some of the apples are likely to be affected by Codling moth. Mr. Larke says that $2.50 would readily be paid in Vancouver for 5-tier apples. This is a better price than can be obtained in the Northwest or in Gt. Britain. The essential condition is that the apples must be free from Codling moth.

The experience at the Exp'l Farm, Ottawa, goes to show that it is possible, with careful spraying, to practically banish the Codling moth from Canadian orchards. Last year it was impossible to find a specimen of the Codling moth in the orchards of the Exp'l Farm, and what was done there can be duplicated in any good orchard in Canada.

Vegetable Growers Meet

At a meeting of the Toronto branch of the Ont. Veg. Grs.' Assn., held in March, it was unanimously decided to sell rhubarb this spring at not less than 20 cts. a doz. An interesting talk on growing vegetables was given by J. B. Guthrie of Dixie, Ont. He said that land for vegetables must be well manured and well cultivated. The most improved impliments should be used for tilling the soil and keeping down the weeds. Growers always should keep ahead of the work When bunching vegetables, they should be put up neatly and uniform in size.

Mr. Guthrie sows early cabbage seed about Feb. 15 in flats. When the seedlings appear, they are transplanted about one inch apart in boxes. These are placed where the temperature is fairly cool. Two or 3 weeks previous to the time for planting outside, he puts them in a cool house or in cold frames. This makes the plants stalky. When transplanting to the field, care must be taken to have a ball of earth around each plant so as not to disturb the roots. Mr. Guthrie plants in the field about 2½ ft. apart each way. At a pre-

Power Spramotor

SPRAYS 250 TREES PER HOUR.

16 to 30 nozzles with 125 lbs. pressure. Automatic, compensating, single or double speed. Strains its own mixture and fills its own tank in 10 minutes. New patented nozzles that spray all parts of the tree from below or above as shown. 2½ horse-power motor can be used for all kinds of work when not spraying. 20c to 30c a day.

An unlimited guarantee against breakages or failure. Tell us your needs. You will get expert advice.

86-Page Treatise A Free!

SPRAMOTOR CO.

BUFFALO, N. Y. LONDON, CAN

Fruit Growers ATTENTION!

WE HAVE THE NEW "FRIEND" NOZZLE

The Very Latest and Very Best

Also a large stock of the following lines at lowest prices

BLUE VITRIOL
FLOWERS OF SULPHUR
PARIS GREEN
GRAPE TWINE
PRUNING SHEARS
SOFT GALVANIZED WIRE

Alexander Hardware Co.
LIMITED
65 King St. East, Hamilton

Mention The Horticulturist when writing

Books for Fruit Growers

Grape Culturist

By A. S. Fuller. This is one of the very best of works on the culture of the hardy grapes, with full directions for all departments of propagation, culture, etc., with 150 excellent engravings, illustrating planting, training, grafting, etc. 282 pages, 5 x 7 inches. Cloth..... $1.50

Successful Fruit Culture

A practical guide to the cultivation and propagation of fruits, by Samuel T. Maynard. This book is written from the standpoint of the practical fruit grower who is striving to make his business profitable by growing the best fruit possible and at the least cost. It is up-to-date in every particular, and covers the entire practice of fruit culture. Illustrated. 274 pages. 5 x 7 inches. Cloth..... $1.00

Insects and Insecticides

By Clarence M. Weed. A practical manual concerning noxious insects and methods of preventing their injuries, with many illustrations. 334 pages. 5 x 7 inches. Cloth..... $1.50

Spraying Crops

By C. M. Weed. A treatise explaining the principles and practice of the application of liquids and powders to plants for destroying insects and fungi. Illustrated. 140 pages. 5 x 7 inches. Cloth. 50 cents.

These are only a few of the books we handle on horticultural subjects. If interested, write for our free catalog of books.

THE HORTICULTURAL PUBLISHING COMPANY
506-7-8 Manning Chambers - Toronto

Imperial Bank
OF CANADA

Established 1875

Head Office, - Toronto

Capital Paid-up, $4,700,000.00
Rest, - - $4,700,000.00

Savings Department at all Branches
Interest allowed on deposits of One Dollar and upwards and credited four times a year.

Special Glass For Greenhouses

See that each Box exhibits this Trade Mark

GOOD QUALITY, FLAT, EVEN THICKNESS, AND WELL CUT

Pilkington Bros.
Limited
Toronto, Montreal, Winnipeg, Vancouver

Mention The Canadian Horticulturist when writing.

vious meeting of the branch, it was decided to charge for all bushel boxes that are delivered, the amount of the charge to be refunded on the return of the boxes.

Notes From an Inspector

Ed. THE CANADIAN HORTICULTURIST: Since my departure from Montreal on January 1 last, my inspection work has been confined mostly to Northumberland County and Cobourg, Grafton, Colborne and Brighton. About Feb. 15 there were 35,000 bbls. of apples at these points to repack. The kinds in store were Golden Russets, Ben Davis, Baldwin and Spy. The latter have been selling well at home.

The apple houses in this county are of modern style, and although the winter has been very severe, yet very little fruit has been damaged by frost. The model packing house has generally model packers, but not always. When nearing some of these houses I have heard profane language, whistling and dancing, and the fruit was usually of the same grade, lacking uniformity

When fruit is irregular in size and quality and hard to grade, one has continually to keep his mind on his business or something will happen. We read of one Ont. man getting 28 shillings a bbl. for No. 1 Golden Russets, and 20 shillings for No. 3 quality. We congratulate such a man, as he has made for himself a name that other men may well covet. Men ask me how such a man gets such a big price and others so much less. I tell them that he packs better, that an even grade can be depended upon always, and wherever his name is found on a package of fruit it is reliable. This is the secret of his success. So go and do ye likewise.

H. WARTMAN,

Dom. Fruit Inspector, Custom House, Montreal.

The Market Gardeners' Assn. of London, Ont., of which T. Wistow is the sec., and which has been in existence for several years, has affiliated with the Ont. Vegetable Growers' Assn., and in future will be recognized as a branch of the Ontario Assn. Mr. Wistow has been elected as the director to represent the London branch, which promises to become one of the strongest branches in the Province. All the leading cities of Ont., including Ottawa, Toronto, Hamilton, and Kingston, now have branches of the Ont. Assn.

A catalog that contains some of the most complete descriptions of varieties that we have noticed is that of Stark Bros. Nurseries and Orchards Co., Louisiana, Mo. All the varieties of fruits worth growing are mentioned therein. This catalog should be in the hands of all Canadian fruit growers.

SPRING, SUMMER AND AUTUMN
ALL THE YEAR ROUND
A GOOD LADDER
IS A NECESSITY

enables you to hand-pick all the apples on the tree. Its extension feature permits it to run through the tree—not only to rest on the outside

Good for every purpose about a farm that a ladder is used for.

Very light and absolutely safe.

Waggoner Ladder Co., Limited
London Ont

Your early order will enable us to ship immediately. Don't wait until you want to use the ladder before placing your order

Mention The Canadian Horticulturist when writing

HORSE POWER SPRAMOTOR

Kills Bugs, prevents Blight, Rot and Scab.

Will improve crop on average 115 bushels per acre. 3½ acres at 40c. a bu. will pay for Spramotor each year.

Adjustable and compensating, and all under control of driver. Pressure from 60 to 150 lbs. at will. All brass. Guaranteed for 1 year in every particular.

14 Ask for 84-page booklet L.

SPRAMOTOR CO.
BUFFALO, N.Y. LONDON, CANADA.

BETTER FRUIT

Is what every fruit grower should grow.
Is what every fruit dealer wants.
Is what we can tell you how to grow.
Is the only strictly Horticultural Paper in the United States.
Is what you should subscribe for, if you want to know how to realize more money for your fruit.

SUBSCRIPTION PRICE, $1.00 PER YEAR
SEND FOR SAMPLE COPY

Better Fruit Publishing Co.
HOOD RIVER, OREGON
Mention The Canadian Horticulturist when writing

Needs of the Fruit Growers

Early in March a meeting of the leading members of the Ont. Fruit Grs.' Assn. was held in Toronto, at which important matters relating to cooperation and transportation were discussed. The cooperative committee discussed the best means of bringing about the organization of new assns. Rules and by-laws of all assns. in Canada and the U.S. will be studied, so that such may be had for districts of varying conditions and requirements. A resolution was passed dealing with the question of substitution in nursery stock, and suggesting legislation to govern same.

The transportation committee will endeavor to obtain from the railway companies better accommodation, better equipment and reciprocal demurrage. Through the efforts of Mr. R. J. Graham during the last year, stop-over privileges of 48 hours have been granted at the rate of 2 cts. a cwt., or about $5 on shipments for export. The committee purposes asking for a similar concession in respect to cars loaded with fruit for the international trade. A resolution was passed instructing the sec'y of the assn. to communicate with the secs. of the Montreal Bd. of Trade, of the Manufacturers' Assn., of the Man. and Sask. Fruit Grs.' Assns., and of the Alta. Farmers' Assn., with a view to securing combined action before the railway commission regarding the question of reciprocal demurrage.

Lack of Space prevents our giving a report in this issue of the discussions at the meeting of fruit growers held in St. Catharines, Ont., in March. The subject of the San Jose Scale and the best methods of combatting it, were discussed by Dr. Jas. Fletcher, of Ottawa, and Prof. H. A. Surface, of Harrisburg, Pa. The importance of spraying, to hold the pest in check, was emphasized, and the lime-sulphur wash was recommended as the best spray mixture.

Advertising Notes

We have just received a copy of this spring's descriptive catalog of the well-known firm, Stone & Wellington, which is, practically, an encyclopædia of all varieties of merit in the fruit and horticultural world. The publication is well printed, with handsome embossed cover, and profusely illustrated with half-tone engravings, showing scenes in their extensive nurseries at Fonthill. Attention has been given to certain lines, such as new and choice varieties of perennials and border plants, new Hybrid roses, rare Coniferæ, deciduous trees and shrubs, while their fruit list contains many new varieties of commercial merit.

The Deming Co. of Salem, Ohio, advertise their spray pumps in this issue of THE CANADIAN HORTICULTURIST for the first time. This Co. is one of the best known and most reliable in the U.S. Its machines have merits that Canadian growers should acquaint themselves with. The Co. furnishes interesting illustrated printed material free on request. Their little booklets are worth writing for.

Bugs and Blights is the title of a booklet being distributed by Hammond's Slug Shot Works, Fishkill-on-Hudson, N.Y., which fruit, flower and vegetable growers should be interested in. A postcard to the Co. will secure you one free of cost.

For the past 5 yrs. or more, we have published the up-to-date SPRAMOTOR ads. appearing in this horticultural medium, and we note with pleasure the rapid strides towards the building of a mammoth manufacturing concern, which could be accomplished in no other way than by modern excellency of product and honest, straightforward dealing with the consumer. Enterprise such as the SPRAMOTOR CO. is showing is to be commended.

Windsor Salt

is the favourite among butter-makers. It readily dissolves, salting the butter uniformly — giving a delicious tastiness.

Less of Windsor Salt goes farther — and does better work than more of any other salt.

If you're a stranger to this pure, dry perfect Salt, ask your grocer for a bag.

That bag will make you want Windsor Salt all the time. Get it to-day.

120

FLOWER POTS

Send us your Spring order for pots, etc.; which will receive our prompt attention.

Try our pots for growing early tomato plants in.

SEND FOR PRICE LIST AND CATALOGUE

THE FOSTER POTTERY CO., LIMITED

Main St. West, Hamilton, Ont.

Mention The Canadian Horticulturist when writing

ANOTHER BIG LIST OF PIANO BARGAINS

Money in your pocket if you study this list of Pianos carefully, and like the wise man or woman, act. The bargains are too good to last long. Do it now.

FOISEY & CO., UPRIGHT GRAND—Rosewood case, panelled case, 7 1-3 octaves. This is a very nice piano, and will give excellent satisfaction for years to come, and is A1 value at..... **$179.00**

FOISEY & CO., UPRIGHT GRAND—Rosewood case, panelled case, 7 1-3 octaves. This is a very nice piano, in good condition, and will give excellent satisfaction for years to come, and is A1 value at **$185.00**

HOWARD, CINCINNATI — Beautiful Oak Case Cabinet Grand, with nicely decorated top door, full length music rack, Boston fall, 7 1-3 octaves, 3 pedals, including orchestral attachment. This Piano is in the best of condition, thoroughly guaranteed, and an instrument that will give good satisfaction, and we consider it A1 value at..... **$245.00**

UXBRIDGE CABINET GRAND—Mahogany case, 7 1-3 octaves, 3 pedals, including practice stop, Boston fall, continuous music rack. This is an excellent instrument, and, while it has been in use 5 months, cannot be told from brand new, and is thoroughly guaranteed in every way. Special at..... **$249.00**

HAINES BROS., NEW YORK—Beautiful Cabinet Grand, rosewood case, 7 1-3 octaves, nicely panelled case, full size Cabinet Grand, an elegant instrument throughout, made by one of the best makers in the United States, and an instrument that will give every satisfaction. We consider it exceptional value at..... **$253.00**

PALMER, TORONTO—Beautiful Mahogany Case Cabinet Grand Upright Piano, Boston fall, continuous music rack, nicely decorated top door, 7 1-3 octaves, 3 pedals. This piano is practically new, having only been used three months, and is an excellent instrument in every way. Five-year guarantee accompanies this piano. Regular price $375.00. Special at..... **$255.00**

WORMWITH & CO., KINGSTON—This is a very handsome walnut case Cabinet Grand Piano, with full iron plate, acoustic rim 7 1-3 octaves, continuous music rack, Boston fall, double trusses and an excellent instrument in every way, used less than 3 months. Five-year guarantee. Regular value $350.00. Special at..... **$275.00**

HEINTZMAN & CO., UPRIGHT CABINET GRAND—Ebonized case, 3 carved panels in top door, 7 1-3 octaves. This is an excellent instrument, and sold originally for $450.00, and we consider it exceptional value at..... **$275.00**

It bears with it our five-year guarantee, and will give satisfaction for years to come.

HEINTZMAN & CO., CABINET GRAND—Beautiful walnut case, 3 carved panels in top door, swing music rack, 7 1-3 octaves, an elegant instrument, and one of our well-known make. This piano sold originally at $500.00, and is exceptionally good value at..... **$295.00**

Our five-year guarantee accompanies this Piano.

EASY TERMS OF PAYMENT

Upright Pianos under $250.00—$10.00 Cash and $6.00 per Month. Upright Pianos over $250.00—$15.00 Cash and $7.00 per Month

Discount of 10 per cent. for all Cash with Order

Should these terms be not agreeable, wire your selection at our expense, and it will be set aside until terms can be arranged satisfactorily. Handsome stool and drape with each instrument, and freight paid to any point in Ontario and proportionate amount to other Provinces

YE OLDE FIRME OF

HEINTZMAN & CO., LTD., 115-117 KING ST. W., TORONTO

Mention The Canadian Horticulturist when writing.

UNDERWOOD

The Underwood is not in the trust. For mutual protection against the instant success of the Underwood, half a dozen of the other leading typewriter companies combined, but their united efforts had no effect in impeding the marvelous development of the Underwood business—the largest typewriter business in the Dominion. The Underwood is a good typewriter. It is the best typewriter.

United Typewriter Co.
Limited

ADELAIDE STREET EAST, TORONTO

Mention The Canadian Horticulturist when writing.

THE PHOTO-ENGRAVERS LIMITED.

DESIGNERS ILLUSTRATORS ENGRAVERS AND ETCHERS

10 JOHNSTON LANE

TORONTO PHONE MAIN 5251 ONTARIO

Mention The Canadian Horticulturist when writing

Mention The Canadian Horticulturist when writing.

A Nice Premium will be given Free to all Readers who Buy Goods from Advertisers.

The Canadian Horticulturist

Vol. XXX MAY, 1907 No. 5

Improving and Originating Varieties of Apples

B. S. Pickett, Plant Breeder, Champaign, Illinois

So much has been written of late regarding the need for improved varieties of almost every sort of cultivated plant that it will be unnecessary to devote any space at this time to a discussion of this phase of the subject. The Canadian Horticulturist has itself frequently urged the need for better sorts of orchard and garden fruits, and growers everywhere are constantly on the lookout for kinds better adapted to their particular conditions. I shall, therefore, proceed at once to a discussion of the control of the factors which make for improvement in varieties of apples.

The control of the varied agencies employed by the originator of improved races and varieties requires, first, an intimate knowledge of their nature, and, second, ability and method in their application. The first of these is by no means fully understood. The most learned men in botanical science are still struggling with the problems of variation and hereditary transmission of acquired characteristics, and so forth; and, until these secrets of plant life are actually laid bare, an absolutely definite system of breeding is not possible. But with regard to improved methods of applying such truths as we do know to the problems of breeding, much may be said of an exceedingly practical nature.

Method implies definiteness of purpose. Modern plant breeding is very largely characterized by definiteness of purpose, idealism in effect, for in no branch of art or science are ideals and unswerving adherence to them of greater importance in the attainment of success than in the improvement of plants. Methods depend upon purposes. The ideal in mind will decide the varieties to be used, the line of experiment and the standard by which the new productions will be tested.

The purpose of improving varieties of apples, summed up as briefly as possible, is to produce plants that are more *efficient* for specific uses and specific localities. Efficiency ideals may be thought of under the following headings: (1) yield ideals, (2) quality ideals, (3) seasonal ideals, (4) physical conformation ideals, (5) regional adaptation ideals (as to climate, soil, altitude, etc.), and (6) resistent ideals (as to insects and diseases). (Bailey, Proc. American Philosophical Society, Vol. 43, (1903), pp. 62–68.) The attainment of each of these ideals may require different methods of procedure. Each may under certain circumstances, assume paramount importance, or several of them may need to be considered in the course of one experiment. Moreover the breeder should endeavor to see that his ideals lie within the possible variability of the race, a matter which may of course, be difficult to judge accurately without definite experimental evidence. A very complete acquaintance with his varieties and species will, however, help the worker to mold his ideals correctly and save efforts which otherwise might be wasted in attempts to accomplish the impossible.

Meets the Needs

I have observed with pleasure the many improvements in The Canadian Horticulturist during the past two years. It comes nearer to meeting the needs of the fruit grower and gardener than any other publication in America. May it continue to prosper.—C. D. Jarvis, B.S.A., Storrs Agricultural Experiment Station, Storrs, Connecticut.

The writer knows of no new or magical principles in the improvement and origination of varieties of apples. Selection of natural variations, whether they be small or great (fluctuating variations or mutations), crossing and individuality of the plants themselves are the bases of the art. Orchardists generally have shrunk from attempts to develop tree fruits because of the time and room required to test seedlings. But a moment's consideration will show that the testing of seedlings on a large scale is an infinitely smaller problem than the solving of transit refrigeration for fruits, the control of insects and plant diseases or the development, even, of power spraying, all of which are matters that the apple grower has attacked fearlessly and confidently. Success depended simply on the perfection of the methods applied in each particular instance. So, too, will the production of improved varieties of apples be made successful through the perfection of the methods applied.

It is manifestly impossible in an article of this kind to give detailed suggestions or directions for the conduction of experiments designed to originate new varieties to meet any considerable number of ideals. Hence, I shall take one example and supplement it with suggestions of a general nature for other lines of experiment.

The apple breeder is presumed to have supplied himself with the necessary collection of varieties, either on the premises where the experiments are to be conducted or within easy reach, and to have at his disposal a large number of orchards from which scions can be selected. In accordance with the principles already laid down, he outlines the ideal variety which he wishes to produce. To take an actual case, perhaps the most frequently expressed ideal of the American commercial apple orchardist is this, an apple of the size, color, hardiness, productiveness, keeping and shipping qualities of Ben Davis or Baldwin, together with the flavor and dessert quality of Northern Spy, Spitzenburg or Fameuse. The tabulation on next page shows the breeder's outline. Each point referred to is given a certain valuation which represents the breeder's ideal in that regard; and by this standard, actually a score card in practice, his selections and crosses will be judged as they come into bearing.

It will be noted that this score card takes into account a great many of the characters desirable in apples. I have endeavored to have it cover all the points of *functional* importance, that is the points representing the *performance* of tree and the *value* of its fruit, and those only. This is immediately apparent in every instance under the heading, "Tree," except possibly the one defined as "Habit of growth."

Straightness of trunk is desirable for convenience in cultivation, and cleanness of trunk because it affords no shelter for insects. A dense branching habit prevents the free entrance of sunlight, is inconvenient in harvesting and adds to the expense of pruning. Low trees are desirable in picking the fruit and in spraying, and an upright branching habit because drooping branches interfere with cultivation. Symmetrical heads are convenient because orchard trees are planted at regular distances apart. In scoring the fruit, stress is laid on form, size and color because these are very important in packing, grading and marketing, representing, as they do, true money value; but it will be noted that the highest values of all are attached in one case to productiveness of tree and in the other to quality of fruit, the two chief factors to be taken into account in the development of this particular ideal.

Upper Part of a Tree Bearing Many Grafts

This illustrates how the fruiting of seedlings is hasteued

Plant Breeder's Score Card

APPLE (Ideal, No. 1)

Purpose—Winter, dessert, market.

Plant	Points Perfection	Score of Seedling
Rootage—Vigorous, resistant to rot and aphis, deep	25	.....
Habit of growth—(a) Trunk, straight, strong, clean	8	.....
(b) Branches, moderately numerous only, not willowy	8	.....
(c) Form, low rather than high, but not drooping, head open, symmetrical	9	.....
Foliage—Plentiful, large, free from disease, dark green	25	.....
Blossoms—Self-fertile; blooming late	25	.....
Hardiness of tree as to climate	15	.....
Earliness of bearing	25	.....
Productiveness—(Taking Ben Davis or Baldwin as standard)	60	.....
Total	200	.....
Fruit	-	-
Form—Regular, round or roundish-oblate, with regular cavity and basin, calyx closed	20	.....
Size—Should average 2¾ inches horizontally and 2¼ vertically	20	.....
Color—Handsome, almost covered with rich red on golden yellow ground	30	.....
Freedom from disease or blemishes	20	.....
Uniformity in size (not over 10% below 2½ inches)	20	.....
Quality—(*a*) Dessert, say equal to Spy or Spitzenburg	40	.....
(*b*) Shipping, carrying well without bruising or slacking, skin not tender	25	.....
(*c*) Keeping, natural season January to 1st April, cold storage till June	25	.....
Total	200	.....
Total for tree and fruit	400	.....

(To be Continued.)

Poisoned Bordeaux Mixture the Summer Spray

T. B. Revett, Department of Agriculture, Toronto

IF the fruit grower means to make any profit from his apples, and to produce a clean crop, he must spray. He must use poisoned Bordeaux mixture and it must be applied at the proper time. As soon as ground is dry enough, and before the buds are out, go through the orchard and spray it thoroughly with copper sulphate—the proportion of which should be four pounds of copper sulphate to 40 gallons of water. This mixture is the most important in the treatment of the apple scab, and should, in no case, be omitted.

The poisoned Bordeaux mixture is so called because poison is added to the Bordeaux to kill the biting insects. The Bordeaux itself affects the scab. The formula of this mixture is four pounds of copper sulphate, five pounds of good, unslaked lime and five ounces of Paris green to 40 gallons of water.

MAKING BORDEAUX MIXTURE

To prepare the mixture, dissolve the sulphate with boiling water and dilute to about 20 gallons. Then slake the lime gradually. Be careful not to drown the lime by adding too much water while slaking. If hot water is used, slaking will be done more easily and thoroughly. When lime is slaked, dilute to about 15 gallons and pour it into the copper sulphate solution and mix properly. Measure five ounces of Paris green, mix to a paste with a little water, and when the paste is properly made, dilute with water enough to enable it to pour. Fill the spraying tank with the copper and lime solution, agitate well, then pour in the Paris green.

Test the mixture by taking a little of it in a cup and dropping one or two drops of potassium ferrocyanide into it. If the mixture does not change color it is all right; but, should a reddish color appear, the copper sulphate has not been neutralized, not enough lime has been used, and the mixture, if applied in that state, will injure the foliage by burning. To avert this, more lime must be put in until the test is satisfied.

The average grower cannot afford to use anything but Paris green to poison his mixture. The only objection to it is that it is very insoluble and settles rapidly. Therefore, continuous agitation is necessary.

A poison that gives good results is lead arsenate. It is harder to mix, but is more soluble than Paris green and stays in suspension longer. It has to be used in larger quantities, four pounds in a 40 gallon mixture, and it is more expensive. One application is sufficient.

Spray just when buds are opening, to kill bud moths and cigar case borers. The second application should be given as soon as the petals fall and while the young apple is upright. This spraying is of special value in combatting the codling moths. The third spraying should be applied when the apples are the size of a five cent piece. This spraying is chiefly for scab and leaf-eating insects.

New Forms of Kerosene Emulsion

Frank T. Shutt, M.A., Chemist, Dominion Experimental Farms

IN an investigation carried on about a year and half ago, to ascertain the emulsifying effect of certain materials (more particularly lime, as advocated by Professor Close) in the preparation of kerosene emulsion, it occurred to the writer that flour might answer for this purpose of holding coal oil in suspension. Experiments proved this to be the case, a very satisfactory emulsion for immediate use resulting. Eight ounces of flour were found sufficient to hold in perfect suspension one quart of coal oil. The emulsion is simply and easily made as follows:

The requisite amount of coal oil (kerosene) is poured into the pail or barrel, and flour added in the proportion of eight ounces to one quart of coal oil, the mass thoroughly stirred and the water added—two gallons for every quart of coal oil. The whole is then vigorously churned, say, for five minutes, by means of a pump and coarse nozzle or a wooden paddle or dasher, as used in upright churns, and the emulsion is ready for use. The spray is smooth, easily atomized and does not clog the nozzle.

During the last few weeks, this investigation, at the suggestion and with the assistance of Mr. Macoun, has been extended to the preparation, with flour, of certain sprays that might prove useful both as insecticides and fungicides—winter washes to be employed on dormant wood only and sprays that would combine the properties of Bordeaux mixture and kerosene emulsion for summer use. The following notes give, briefly, information regarding the emulsions which it has been thought might be serviceable to the fruit grower:

Winter Washes

"A" BLUESTONE, 1%

Bluestone	4 pounds
Flour	8 "
Kerosene	4 gallons
Water	36 "

Mix the flour with the kerosene, as before described, the bluestone being dissolved in the water. Pour about one-half of the solution (the exact quantity is a matter of no moment) on to the kerosene-flour mixture and churn for five minutes. Pour in the remainder of the bluestone solution, stir, and the emulsion is ready for use. On standing, this spray separates into two layers, which, however, are readily re-mixed by stirring. Free oil does not appear, if the churning has been efficient, for at least 20 hours.

"B" CAUSTIC SODA 2%, KEROSENE 10%

Caustic soda	8 pounds
Flour	8 "
Kerosene	4 gallons
Water	36 "

"D" CAUSTIC SODA 2%, KEROSENE 5%

Caustic soda	8 pounds
Flour	8 "
Kerosene	2 gallons
Water	38 "

"E" CAUSTIC SODA 1%, KEROSENE 5%

Caustic soda	4 pounds
Flour	4 "
Kerosene	2 gallons
Water	38 "

It will be noticed that these three emulsions contain the same ingredients, but differ in strength; that is, in proportion to caustic soda and kerosene. The preparation is alike in all. The flour and the kerosene being mixed in the desired proportion, the solution of the caustic soda (lye) is poured on and the whole churned for five minutes. They are all remarkably stable, no free oil appearing after standing for four days, save traces in the case of "E," which contained but four pounds flour for 40 gallons in this emulsion. The stability or permanence of these emulsions is undoubtedly due to the action of the caustic soda on the flour, making a viscous fluid which is eminently adapted for holding the coal oil in suspension.

Summer Sprays

"H" BORDEAUX AND KEROSENE

Bluestone	4 pounds
Lime	4 "
Kerosene	4 gallons
Water	36 "

This is the usual Bordeaux mixture, plus 10% kerosene. It is best made as follows: To the freshly slaked lime add one-half the total volume of water and pour in the requisite amount of coal oil, emulsify for five minutes, then pour in the remainder of the water, in which the bluestone has been dissolved, and stir well for one minute. Though on standing a thick, creamy layer forms, there is no separation of oil for at least 24 hours, and simple stirring is all that is necessary within a few days of making to bring about a perfect mixture.

"K" BORDEAUX, FLOUR AND KEROSENE

Bluestone	4 pounds
Lime	4 "
Flour	4 "

Do not Spray when Trees are in Bloom—it is against Nature and the Law

Kerosene	4 gallons
Water	36 "

This, it will be observed, is the Bordeaux-kerosene emulsion just described, plus flour. To the diluted slaked lime, the kerosene containing the flour is added and the whole emulsified for five minutes; the solution of bluestone (approximately one-half of the total volume) is then poured in and the whole well stirred. This is a particularly stable emulsion, no free oil showing after five weeks. The thick layer that had separated at the end of this period, and which contained the oil, readily mixed again, forming a perfect emulsion. As a spray furnishing at once Bordeaux mixture and coal oil—a combined fungicide and insecticide—one simply made and of excellent keeping quality, this formula gives great promise. From the standpoint of preparation and the laboratory tests it leaves nothing to be desired.

Destroying Aphis with Flour-Kerosene Emulsion

W. T. Macoun, Horticulturist, Central Experimental Farm, Ottawa

IT having been discovered and demonstrated at the Central Experimental Farm that kerosene emulsion could be made with flour instead of soap for holding the kerosene in suspension, this form of emulsion was used successfully in a practical way in 1905 and 1906. As the emulsion made in this way is much easier to make than with soap, it was desirable to learn what percentage of oil was necessary to kill the aphis, as soap, in addition to its value in holding the kerosene in emulsion, is an insecticide itself and without it more kerosene might be required. The following percentages of kerosene were, therefore, used on July 16, 1906, in spraying apple trees badly infested with aphis.

Spraying Large Trees with a Deming Spray Pump

Percentages used — approximately: six per cent.; seven and a half per cent.; nine per cent.; 11 per cent. The following notes were made:

KEROSENE EMULSION

With 6 % kerosene: Aphis not affected.
With 7½% kerosene: Aphis not affected.
With 9 % kerosene: Not so effective as 11 %, but most of the aphis destroyed.
With 11% kerosene: Practically all aphis destroyed.

In the kerosene emulsion made with soap scarcely seven per cent. kerosene is recommended. There was no injury to the foliage of the trees in any case. Apple trees in nursery were sprayed on July 12, with very good results, the insects being nearly all killed. Plum trees were sprayed July 12, with 11 per cent. kerosene emulsion. Many aphis were killed without apparent injury to the trees.

Experiments had been conducted in the chemical laboratories with Mr. Frank T. Shutt, chemist, who discovered the value of flour in making kerosene emulsion, to determine the weight of flour necessary to hold in suspension certain quantities of kerosene. Experiments had also been tried in different methods of preparing the emulsion and the amount of churning necessary. This work being done with small quantities, it remained to determine the best method when made by the barrel.

A dasher was made by nailing two pieces of wood crosswise to one end of a pole, the other end being used as a handle. A piece of sacking with a hole in the centre for the pole to go through, held in place on the barrel by a hoop, prevented the emulsion from splashing out of the barrel.

To make an emulsion having approximately 11 per cent. of kerosene (or to be exact 11 1-9 per cent.), it was necessary to have five gallons of oil to 40 gallons of water.

From these experiments it was clearly demonstrated that a satisfactory emulsion containing approximately 11 per cent. of kerosene could be made by using only five pounds of flour to the barrel, in other words only five pounds of flour are necessary, when an emulsion is formed, to hold in suspension five gallons of kerosene for two hours. A poor grade of flour answers the purpose well. The cost of one barrel of emulsion would thus be five pounds flour at $1.75 per 100 pounds, 8¾ cents; five gallons kerosene at 16 cents, 80 cents; total, 88¾ cents.

When the emulsion is not to be used at once or within two hours, twice the quantity of flour should be used with which quantity the oil will not separate in 12 hours and more.

FORMULA FOR APHIS

The formula recommended for kerosene emulsion made with flour for destroying aphis on apple and plum trees is five pounds of flour (or 10 pounds, if emulsion is not used within two hours), five gallons of kerosene, and 40 gallons of water. Pour the kerosene in the barrel, put in the flour and stir thoroughly, then pour in 20 gallons of water and churn violently for from four to five minutes; now add remainder of water and the emulsion is ready for use.

Experiments were tried recently in conjunction with Mr. Frank T. Shutt, chemist, to determine if a satisfactory Bordeaux mixture and kerosene emulsion could be made which could be mixed together and sprayed on the trees at the same time. The results of these experiments are given by Mr. Shutt in an article written by him. One of the mixtures appears so satisfactory that it will be given a trial in the orchards at the Central Experimental Farm this year. The mixture is made by churning

the kerosene with Bordeaux mixture, flour being added before churning at the rate of four ounces to each quart of kerosene which has been used. It will be necessary in preparing by the barrel to do the churning with about half the necessary amount of water in order that the mixture will not splash over, adding the requisite amount of water afterwards This kerosene emulsion and Bordeaux mixture made in small quantities has

A Patriarchal Apple Tree

This splendid apple tree, shown as photographed when in bloom, stands on the property of Mr. George Head, of Oakville, Ont., and is reported to be 70 years old. The trunk, two feet from the ground, measures nine feet four inches around. The branches spread fifty-nine feet six inches. It appears to be of the Blenheim Orange variety. According to Mr. D. Robertson, of Oakville, who has known the tree for many years, it has never had any proper care, not even the suckers having been cut. Fifty years ago it yielded 26 barrels of apples, including 19 barrels of XXX fruit, and more might have been picked

remained for five weeks without any appreciable separation of kerosene. The mixture is a smooth one and after standing mixes readily again. While this has not been tested sufficiently to recommend unreservedly it gives promise of being a very desirable combination.

Handy Devices

A simple but effective method of cleaning a vineyard of the trimmings and other rubbish which they contain in the spring of the year has been adopted by Mr. Murray Pettit, of Winona, as well as by several other leading fruit growers in that section. A pole about 16 feet long and three to three and a half inches in diameter is used. About six feet from one end of the pole is a clevice, to which a chain is attached. The chain is about 12 feet long and connects with a whiffletree so that a horse may be used to pull the pole. The end of the pole near the horse is so cut on one side that it will run along the ground readily. When the orchard is being cleaned, the driver holds one end of the pole up from the ground, while the end near the horse runs along the ground picking up the canes and rubbish as it goes along. In this way, the rubbish is carried to the ends of the vineyards where it is dumped in piles, and later burned or carted away, as the case may be.

FOR THE FRUIT ORCHARD

For cleaning the orchard, after the trees have been pruned, two poles are used instead of one. The poles are fastened together by a heavy piece of iron about two and a half feet long. The man operating these poles, holds the ends in the same way he would the handle of a plow. The two ends of the pole on the ground sweep up the branches and rubbish like a broom. An editorial representative of THE HORTICULTURIST, who visited Mr. Pettit's vineyard and orchard shortly after this work had been completed last year, was astonished to find how clean the ground had been swept.

With a device of this kind, which costs almost nothing, it is possible to clean the vineyard or orchard as quickly as a horse can walk up and down the various paths. Mr. Pettit states that two men and a team will take out as much rubbish in less time than it would take 10 men and five teams to pick up the same rubbish and draw it out on sleds.

Orchard Implements

That the value of good tillage in fruit orchards is appreciated, is evidenced by the efforts and achievements of inventors and manufacturers in producing implements and machines that will render the work less exacting and tedious for the grower and that will perform it more thoroughly, expeditiously and economically. When fruit trees were grown with trunks five or six feet high, most of the ordinary implements for tilling the soil in the field could be used in the orchard. Now that up-to-date orchardists are recognizing the importance of heading their trees low, particularly peaches, the manufacturer has had to produce an implement that will meet the need required by the change.

To trace the history of orchard implements is practically to record the beginning and development of the culture of fruits. Various and interesting have been the changes in the plow from that of earlier times to the modern types. The old-fashioned drag became a harrow and it has assumed various forms. The introduction of the spring-tooth-harrow marked another advance in construction. Following this came a series of harrows and cultivators that have proven great helps in the cultivation of the orchard. For cultivating under low-headed trees, extension and reversible disc harrows have been invented.

Some fruit growers object to low-headed fruit trees on the ground of expense and labor at the time of cultivating. This trouble can be overcome by the use of the modern extension harrow. With it, the soil under the trees can be stirred without injuring the branches. The horse, or horses, walk in the space between the limbs and one arm of the harrow extends under the limbs of the trees. Not only is the extension disc harrow of value in this particular, but, also, it pulverizes the soil much better than other kinds of harrows. It leaves the soil in the best possible condition for the conservation of soil moisture and for the benefit of the trees.

A Friend Spraying Outfit at Work in an Orchard

Experiments conducted in 1905-06, at the Illinois Expt. Sta., with various mixtures for treating San Jose scale, show that the simple lime and sulphur washes prepared by boiling are superior to all others. Applications made in spring are twice as efficient as those made in January.

Planning and Planting the Strawberry Patch

J. C. Black, Truro, Nova Scotia

MOST any soil, if properly manured and cultivated, suits the strawberry; but most varieties prefer either a sandy or clay loam. Low land is very good, but there is always the danger of late spring frosts killing the blossoms on locations of that nature. Since frost is like water and runs down hill, it is wise to plant only late flowering varieties on relatively low ground, and leave the early flowering kinds for the higher land.

The chief factors in strawberry culture are manure and tillage. In manure, four things are essential: humus, nitrogen, potash and phosphoric acid. Humus, or decayed vegetable matter, makes the soil mellow, so that air will readily circulate through it, and spongy, so that it will hold moisture. All four is found in good stable manure, which, in my experience, has proved to be the best fertilizer for strawberry soils. It may be applied in large quantities by itself, or in small quantities and supplemented with bone meal, wood ashes or poultry droppings. Ashes should not be mixed with manure until applied to the land, as it sets free the ammonia of the manure and causes it to be lost in the air.

Stable manure is best applied in the fall and plowed in at once. When necessary to apply it in the spring, particularly if raw or green, see that it is thoroughly mixed and incorporated with the soil, so that no green manure will come in contact with the roots of the plants.

My experience with commercial fertilizers is limited, except with ground bones. A complete commercial fertilizer for strawberries should contain, it is said, 3 to 4 per cent. nitrogen, 10 to 12 per cent. pure potash, and 12 to 14 per cent. available phosphoric acid. Commercial fertilizers are better used in connection with stable manure, or with leguminous cover crops for turning under. I have found it a good plan, however, to sow a little fertilizer along both sides of the row just before the vines begin to run, and work it into the soil.

PLANTS AND PLANTING

Plants should be selected from a plot that has not fruited, so as to get them strong and vigorous. It is best to dig up the whole row with a fork, shake out the dirt and select only the best plants, rejecting tip plants and all that are not well rooted or well matured.

For planting, use a tool something like a cooper's adze or a grub hoe. It can be made by any blacksmith. The blade should be about eight inches long and four inches wide with a shank turned on the end of it, bearing a handle about 15 or 18 inches long. Strike this into the ground and draw back, then place the plant in the hole with roots as near fan-shaped as possible, withdraw the tool and firm the soil around the plant. The crown of the plant should be on a level with the surface of the ground. Do not expose plants to sun and wind. A boy should drop the plants only as they are wanted by the planters. By this method a large area can be planted in a day.

The number of plants required to plant an acre depends, of course, upon the distance apart. When 30 by 24 inches apart, approximately 9,000 plants are required; when 30 by 30 inches apart 7,000 plants; when farther apart a smaller number, etc.

INTERPOLLINATION

In strawberry varieties, there are two kinds of flowers, perfect and imperfect, or male and female. The perfect or bisexual flower is the only one that produces pollen; the imperfect or pistillate flower is barren unless fertilized by pollen from a perfect flowering variety. When planted alone, imperfect varieties produce no fruit, nothing but deformities in the shape of nubbins. To insure a crop from an imperfect variety, it is necessary to plant second or third rows with plants of a perfect variety for cross fertilization. This must be borne in mind when selecting varieties.

SYSTEMS OF CULTURE

There are three methods of growing strawberries, viz., hill culture, hedge rows and the matted row system. Hill culture is probably the best for small gardens. It consists of setting the plants about 15 inches apart and of cutting off the vines as fast as they appear. The ground should be kept stirred around the plants so they will stool out and develop many fruit crowns. Keep the blossoms off the first season, and the plants will produce fruit of superior quality and size the second season.

The hedge row system is comparatively new, and is suitable for either garden or field culture. For the garden the rows may be made about 18 inches apart; for the field, about 30 inches apart or more, with plants about 24 inches apart in the row. On both sides of the mother plant, one vine is trained in a straight line and two or three plants are allowed to set on a vine, all others being pinched or cut off. This keeps the rows narrow so that a cultivator may be run close to the rows, leaving little work to be done by hand.

The matted row system is the old reliable for commercial plantations. Have the ground level and smooth, then mark out rows 36 to 42 inches apart and set the plants 18 to 24 inches in the rows. The rows should be perfectly straight for ease in cultivating without disturbing the plants. When the vines begin to run train them into the spaces between the plants and keep narrowing up the cultivator, always going the same way so as not to disturb the new plants that have rooted. By this system a larger yield per acre can be secured than from the other systems described, but the fruit may not be as fine in quality. One objection I have to the matted row system is that the rows are liable to get too thick in places and thus prevent a proper development of the fruit.

Herbaceous Borders that Bloom for Seven Months

E. Byfield, Toronto

PLANT lovers, people who know, and feel, and appreciate the beautiful in home surroundings, realize that the ordinary floral effect, even in our best gardens, is inordinately dull, commonplace, and wholly unsatisfactory. A few beds cut in the lawn, and hopelessly destroying the repose and restfulness that an unbroken stretch of green grass produces, these beds laid out in stiff, formal rows of cannas, geraniums, coleus and a few other greenhouse productions, such are the ordinary, orthodox gardens of Ontario, one exactly like another, monotonous in arrangement, monotonous in ever recurring uniformity, and monotonous in never varying colors for the few short months between early summer and early fall that our short, free-from-frost season will permit. With the first light frost in fall the plants are changed in a night to pulp, and the beds become unsightly mounds of bare earth to still further disfigure the lawns until the next June, then another stock of greenhouse plants to be bought to stand in unchanging stiffness for three or four months in the broken and disfigured lawn, then as before to disappear with the first frost, and thus on with unvarying annual recurrence.

Why do Canadians go on, year after year, putting in this expensive and unsatisfactory stock when a similar expense would provide a greater number of the choicest hardy perennial plants and shrubs, plants that would furnish a continual but ever changing display of color, of form, and of grace from the passing of the snow in spring till its return late in the fall! And even then there is the assurance that your plants are not dead and done with, as in the other case, but are simply taking a well-earned rest in order to make a showing next year far in advance of what they have done this year.

England has long ago discarded, and our neighbors to the south are fast discarding, the formal beds and bedding plants that still obtain here. The old-fashioned plants of their grandmother's gardens are taking again their rightful place, or rather the descendants of those plants, descendants so improved, however, through the hybridist's skill and the collector's zeal, that the common flowers of their grandmother's time are scarcely recognizable in the magnificent aristocrats of to-day that bear the names of the old favorites, changed in all but name. Imagine a well-laid out garden comprising hardy phlox, English delphiniums, oriental poppies, irises, columbines, pæonies, pyrethrums, bleeding hearts, Canterbury bells, foxglove, coreopsis, gaillardias, lychnis, heucheras, hollyhocks, boccenias, anemones, Iceland poppies, campanulas, lilies of various kinds, helianthus, rudbeckias, all of medium height or stately, while the space beneath might be filled with low growing plants such as Sweet William, cinquefoil, vinca, coronilla, creeping phlox, lily of the valley, linaria, Scotch pinks, armerias, veronicas, alyssums, cowslips, narcissi, arabis, and so forth. The range of suitable and appropriate plants is so large that one scarcely knows where to stop. Such a garden gives everything desirable, an inexhaustible wealth of color from earliest spring till the coming snow of latest fall, constant variety and change, gracefulness and ease in the growing plants, a natural background to the unbroken lawn flanked by such flowering shrubs as spiræas, viburnums, weigelias, mock orange, rhododendrons, lilacs and the lower growing berberis, deutzias and hardy azaleas. The constant interest and ever present joy and delight felt by the owner of such a border can only be dimly understood except by those who have had the pleasure of growing these kinds of plants.

To obtain these results, there must be no haphazard arrangement of plants. The owner should have a definite plan for the season's bloom, and plants should be arranged in the border so as to carry out this plan. A few general rules might here be applicable in the laying out of the border:

1. As a rule, if the border runs along a fence or path so as to be viewed from one side, the taller plants should be in the rear; if seen from both sides, the taller should be in the middle of the border.

2. Plants should be so arranged that colors in close proximity may harmonize.

3. Plants should be selected and placed in such a position that no part of the border is at any time without bloom. As one kind of plant is through blooming another kind beside it should be coming into bloom, thus keeping up a succession of bloom the season through.

4. The most striking effects are produced by large masses of color. For this reason, it is better to plant together several of one variety than one each of a number of different varieties.

Tender bulbous plants such as dahlias, cannas, gladioli, tritomas, and Hyacinthus candicans lend themselves admirably to effective display in the hardy border. After the frost has cut down the tops, the roots should be taken up and stored in a cool, frost-proof cellar to be replanted the following spring. Showy annuals, such as asters, pansies, Phlox drummondi, dianthus and nasturtiums are also effective, and tender bedding plants find here congenial surroundings, while their objectionable features when planted in beds by themselves are entirely absent. Of course, the above rules should be carefully followed in placing these latter plants in the border, and especial care must be taken to place plants beside hardy ones of similar colored bloom.

To assist the amateur, a scheme is appended giving a list of hardy plants that will withstand our ordinary Ontario winters, the month in which they usually begin to bloom here, the predominant color of their bloom, and their average height. Most of them carry their bloom into the next month, and many of them throughout the remainder of the season. See table on next page.

Corner of a Home Where Flowers Abound

In the garden of Mr. P. G. Keyes of Ottawa. In the foreground is the climbing rose, Prairie Queen.

Perennials Recommended for Canadian Gardens—Tabulated in Order of Blooming and According to Color

	WHITE	YELLOW	ORANGE	RED	PINK	PURPLE	BLUE
APRIL	Crocus, 4 in. Grape Hyacinth, 6 in. Snowdrop, 3 in. Hepatica, 5 in. Arabis alpina, 7 in.	Crocus, 4 in.			Hepatica, 5 in.		Crocus, 4 in. Grape Hyacinth, 6 in. Scilla Sibrica, 3 in. Glory of the Snow, 6 in. Hepatica, 5 in.
MAY	Early Tulip, 6 in. to 10 in. Trumpet Narcissus, 12 in. Narcissus Poeticus, 15 in. Hyacinth, 8 in. Moss Pink, 6 in. *Phlox subulata* Lily of the Valley, 6 in. Early Pæony, 2 ft. Double Daisy, 6 in. *Bellis perennis* Pyrethrum, 20 in. Trillium, 12 in. Candytuft, 10 in. *Iberis sempervirens* German Iris, 2 ft.	Early Tulip, 6 in. to 10 in. Trumpet Narcissus, 12 in. Golden Tuft, 12 in. *Alyssum saxatile* Leopard's Bane, 2 ft. to 3 ft. *Doronicum* Lemon Day Lily, 20 in. *Hemerocalis flava* Lady's Slipper, 12 in. Cowslip, 6 in. German Iris, 2 ft.	Early Tulip, 6 in. to 10 in. Narcissus Orange Phœnix, 12 in. German Iris, 2 ft.	Early Tulip, 6 in. to 10 in. Early Pæony, 2 ft. Double Daisy, 6 in. *Bellis perennis* Pyrethrum, 20 in. Cowslip, 6 in. Bleeding Heart, 2 ft. German Iris, 2 ft.	Early Tulip, 6 in. to 10 in. Hyacinth, 8 in. Moss Pink, 6 in. *Phlox subulata* Lady's Slipper, 12 in. Early Pæony, 2 ft. Double Daisy, 6 in. *Bellis perennis* Pyrethrum, 20 in. Trillium, 12 in. Cowslip, 6 in. Coronilla Varia, 12 in. Sea Pink, 9 in. *Armeria maritima* German Iris, 2 ft.	Wild Sweet William, 18 in. *Phlox divaricata* Moss Pink, 6 in. *Phlox subulata* Early Pæony, 2 ft. German Iris, 2 ft.	Blue Bells, 16 in. *Mertensia Virginica* Spiderwort, 2 ft. *Tradescantia Virginiana* Hyacinth, 8 in. German Iris, 2 ft.
JUNE	Wind Flower, 18 in. *Anemone Pennsylvanica* Sweet Rocket, 2 ft. to 3 ft. Canterbury Bells, 30 in. *Campanula media* Columbine, 20 in. *Aquilegia* Iceland Poppy, 12 in. Scotch Pink, 10 in. *Dianthus plumarius* Late Pæony, 2 ft. Achillea, The Pearl, 20 in. Peach-leaved Campanula, 2 ft. *Campanula persicifolia* Lupine, 2 ft. *Lupinus polyphyllus* Bell Flower, 18 in. *Platycodon* Iris tectorum, 20 in. White Day Lily, 2 ft. *Funkia subcordata* Jacob's Ladder, 1 ft. *Polemonium* Tall Phlox, Miss Lingard, 3 ft. Branching Larkspur, 2 ft. *Delphinium Chinensis* Tall English Larkspur, 4 ft. to 6 ft. *Delphinium* Foxglove, 2 ft. to 3 ft. *Digitalis* Sweet William, 12 in. to 20 in. *Dianthus barbatus*	Canadian Wild Lily 2 ft. to 3 ft. *Lilium Canadense* Columbine, 20 in. *Aquilegia* Iceland Poppy, 12 in. Gaillardia, 20 in. Coreopsis, 20 in Downy Yarrow, 12 in. *Achillea tomentosa* Asphodel, 3 ft. *Asphodelus luteus* Flowering Spurge, 1 ft. *Euphorbia corollata* Black-eyed Susan, 3 ft. to 4 ft. *Rudbeckia hirta*	Flame or Wood Lily, 2 ft. to 3 ft. *Lilium Philadelphicum* Orange Lily, 18 in. *Lilium Elegans* Butterfly Flower, 2 ft. *Aclepiastuherosa* Orange Day Lily, 4 ft. *Hemerocalis fulva* Iceland Poppy, 12 in. Gaillardia, 20 in.	Oriental Poppy, 2 ft. to 3 ft. Coral Lily of Siberia, 18 in. *Lilium tenuifolium* Columbine, 20 in. *Aquilegia* Maltese Cross, 2 ft. *Lychnis Chalcedonica* German Catchfly, 9 in. *Lychnis viscaria* Late Pæony, 2 ft. Fire Pink, 18 in. *Silene Virginica* Coral Bells, 18 in. *Heuchera sanguinea* Sweet William, 12 in. to 20 in. *Dianthus barbatus*	Oriental Poppy, 2 ft. to 3 ft. Scotch Pink, 10 in. *Dianthus plumarius* Canterbury Bells, 30 in. *Campanula media* Columbine, 20 in. *Aquilegia* Late Pæony, 2 ft. Tall English Larkspur, 4 ft. to 6 ft. *Delphiniums* Foxglove, 2 ft. to 3 ft. *Digitalis* Sweet William, 12 in. to 20 in. *Dianthus barbatus*	Sweet Rocket, 2 ft. to 3 ft. Meadow Rue, 2 ft. *Thalictrum aquilegifolium* Columbine, 20 in. *Aquilegia* Tall English Larkspur, 4 ft. to 6 ft. *Delphinium* Foxglove, 2 ft. to 3 ft. *Digitalis*	Forget-me-not, 4 in. Scabiosa Caucasia, 2 ft. False Indigo, 3 ft. *Bahlsia Australis* Canterbury Bells, 30in. *Campanula media* Columbine, 20 in. *Aquilegia* Jacob's Ladder, 1 ft. *Polemonium cæruleum* Peach-leaved Campanula, 2 ft. *Campanula persicifolia* Lupine, 2 ft. *Lupinus polyphillus* Bell Flower, 18 in. *Platycodon* Iris Sibrica, 20 in. Delphinium Chinensis, 2 ft. Tall English Larkspur, 4 ft. to 6 ft. *Delphinium* Blue Larkspur, 3 ft. *Delphinium formosum*
JULY	False Chamomile, 3 ft. to 4 ft. *Boltonia asteroides* Baby's Breath, 1 ft. *Gypsophilla paniculata* Hollyhock, 5 ft. to 7 ft. Japanese Iris, 4 ft. Phlox, 2 ft. to 4 ft. Shasta Daisy, 18 in. Spanish Bayonet, 4 ft. to 6 ft. *Yucca filamentosa* Lilium Longiflorum, 2 ft. to 3 ft.	Yellow Chamoile, 18 in. *Anthemis Kelwayi* Helenium, Grandiflorum, 2 ft. to 3 ft. Double Hardy Sunflower, 4 ft. *Helianthus multiflorus* Japanese Iris, 4 ft.	Helenium autumnate superbum, 3 ft. Beard tongue, 2 ft. *Pentstemon barbatus Torreyi* Turk's Cap Lily, 5 ft to 8 ft. *Lilium superbum* Japanese Iris, 4 ft. Tiger Lily, 5 ft. *Lilium tigrida*	Bergamot, 3 ft. *Monarda didyma* Rose Campion, 2 ft. *Agrostemma flosadonis* Red Valerian, 2 ft. *Centranthus ruber* Gas Plant, 2 ft. *Dictamnus fraxinella* Hollyhock, 5 ft. to 7 ft. Phlox, 2 ft. to 4 ft.	Japanese Iris, 4 ft. Hollyhock, 5 ft. to 7 ft. Phlox, 2 ft. to 4 ft.	Japanese Iris, 4 ft. Phlox, 2 ft. to 4 ft.	Monkshood, 28 in. *Aconitum napellus* Pentstemon Ovatus 3 ft. Japanese Iris, 3 ft.
AUGUST	Plume Poppy, 5 ft. to 7 ft. *Bocconia cordata* Flowering Spurge, 1ft *Euphorbia corollata* Crimson Eye Marsh Mallow, 3 ft. *Hibiscus* Golden-banded Lily, *Lilium auratum* Lilium Speciosum Album, 2 ft. to 3 ft. False Dragonhead, 2 ft *Physistegia Virginica Alba* Giant Knotweed, 6 ft. to 8 ft. *Polygonum cuspidatum*	Hardy Sunflower, 7 ft. to 8 ft. *Helianthus mollis* Helianthus Orgyallis 5 ft. to 6 ft. Heliopsis Pitchenana, 3 ft. to 6 ft. Golden Glow, 8 ft. *Rudbeckia* Cone Flower, 2 ft. to 3 ft. *Rudbeckia speciosa*	Helenium Hoopsei, 2 ft. to 3 ft. Blackberry Lily, 3 ft. *Pardanthus Chinensis*	Cardinal Flower, 3 ft. *Lobelia cardinalis*	Stone Crop, 15 in. *Sedum spectabilis* Mallow, 3 ft. *Hibiscus moschentos* Milfoil, 2 ft. *Achillea millefolium*	Joe Pye Weed, 6 ft. to 8 ft. *Eupatorium purpureum* Kansas Gay Feather, 4 ft. *Liatris pycnostachya*	Sea Holly, 3 ft. to 4 ft. *Eryngium* Stokes' Aster, 18 in. *Shokesia cyanea* Ironweed, 1 ft. to 3 ft. *Veronica* Blue Day Lily, 2 ft. *Funkia cærulea*
SEPT.	Wind Flower, 2 ft. to 3 ft. *Anemone Japonica* Hardy Asters, 3 ft. Giant Daisy, 4 ft. *Pyrethrum uliginosum*	Hardy Sunflower, 6 ft. *Helianthus Maximillianii*			Queen Charlotte Wind Flower, 2 ft. to 3 ft. *Anemone Japonica* Hardy Asters, 3 ft. Deer Grass, 1 ft. *Rhexia Mariana*	New England Aster, 3 ft. *Aster Novæ Angliæ* Meadow Beauty, 1 ft. *Rhexia Virginica*	Hardy Asters, 3 ft Plumbago Larpentæ, 8 in.

If the flower stems of English Delphiniums and July flowering Phlox be cut back after blooming, the former to the ground and the latter just below the flower panicle, they will each produce a second partial bloom in September.

OCT.	Pompon Chrysanthemums	Pompon Chrysanthemums	Pompon Chrysanthemums	Pompon Chrysanthemums	Pompon Chrysanthemums		

Lawn and Garden Hints for May

MAY is the month of active garden operations. Seeds and plants of most kinds of flowers, fruits and vegetables may be planted. Select varieties of fruits and vegetables that

Great Results from a Small Beginning

This illustration shows the effect of one enthusiast fixing up the back yard. The neighbors soon "caught on" and the result was that every back yard on the street was transformed into a veritable flower garden.

are not hard to grow and those that stand for quality. Plan to have a better garden than ever before. Watch its growth and development and when the season is past tell THE CANADIAN HORTICULTURIST how you did it.

THE VEGETABLE GARDEN

In the vegetable garden the soil should be broken fine and as deep as the plant roots may be expected to grow. When digging, work in a liberal application of well-rotted barnyard manure. If you have some wood ashes, they also should be worked into the soil. The time for planting can only be learned by experience. Onions, peas, spinach and other hardy vegetables may be planted as soon as the ground is fit for them. Seeds of tender plants such as cucumbers, corn, squash and so forth, should not be planted until all danger of frost is past. If beet, carrot, parsnip or bean seeds are soaked over night, they come up a day or two earlier. Do not plant the seeds too deeply in spring, but be sure and sow them in moist or freshly stirred soil. If frost threatens, young seedlings should be covered with paper, large leaves or even with earth. The cover should be removed as soon as the danger is past.

An early crop of peas may be obtained by planting between rows of onions.

Radishes will thrive in any good soil, but to be crisp and tender they should be grown quickly. If a continuous supply is wanted, make a sowing every 10 days or two weeks. Good varieties are Scarlet White-tipped Turnip and French Breakfast.

The best variety of beet for small gardens is the dark Egyptian. For an all-season carrot there is none to beat the Chantenay. Two of the best onions are Yellow Globe Danvers and Large Red Wethersfield. The best parsnip is Hollow Crown. There are many excellent varieties of peas, including Gradus, Heroine and Stratagem. For early squash, plant the White Bush Scallop; for later varieties in order, Summer Crook Neck and Hubbard.

A good sowing of lettuce should be made early in May. Good varieties are Big Boston and Black-seeded Simpson. For parsley, sow Double Curled.

Have you ever grown salsify in the garden? It is a most delicious vegetable. Try a packet this spring. The seed should be sown as early as possible. Handle the same as parsnips in every way. The best variety is Sandwich Island.

Lantana delicatissima, a Nice Plant for a Hanging Basket

Stir the surface soil and cultivate the soil around all growing crops. It kills the weeds almost before they start to grow. It saves moisture and assists plant growth in many other ways.

AMONG THE FRUITS

Are you going to start a strawberry patch this spring? These fruits are easily grown. They deserve a prominent place in the amateur's garden. Plant them in rows three feet apart, with plants 15 to 18 inches apart in the rows. Buy varieties that have perfect blossoms, so that they will fertilize themselves. Imperfect ones must have perfect ones planted alongside to insure fertilization and a crop. There are many excellent varieties. It is difficult to recommend a list that would grow in all localities, as a sort that does well in one county or province may be useless in another. When choosing, seek the advice of a neighbor who has had success.

In the spring, when the plants begin to grow, the mulching should be raked into the spaces between the rows and remain there until after the berries are picked. If there is danger of frost after they have commenced blossoming turn this mulch in over on the plants for a single night, and thus a good share of the crop may be saved.

If the garden does not already contain them, plant come currant and gooseberry bushes. Plant them about five feet apart. Raspberries and blackberries deserve a place also if there is room for them.

This is the season to watch your currant bushes for the currant worm; gooseberry bushes too. No matter if there is no fruit on them. The loss of foliage weakens the plants; and a dusting with powdered hellebore will make matters right.

PRUNING ROSES

The best time to prune most roses is just as the buds are starting. Cut out

all dead and weak branches. Head back the remaining branches to a few inches of the old wood. Shoots that spring from the base of the bush and from a point above the old union made by grafting when the tree was young, should be cut back to within 15 inches or so of the ground. Suckers that spring from points below this should be removed. Remove the dead and weak wood from your climbing roses. Cut back the remaining branches to about five feet, unless you wish the bush to cover the screen or fence more quickly. By shortening each year, however, a more compact climber is secured. Of course, all roses must be pruned with judgment. More buds may be left on the strong shoots than on the weak ones.

IN THE FLOWER GARDEN

Seed sowing and transplanting will be the first work in the flower garden. Plants that have sprung from seeds sown earlier in the house should not be transplanted from the house to the open ground without first going through a hardening-off process. This is done by gradually introducing the plants to the changed conditions of outdoor life by exposing them for a few hours a day at first to outside influences. A cold frame is a good place in which to harden tender plants. It can be done, however, by standing the plants out where they can be either lifted indoors again or protected until they become accustomed to the changed conditions.

Nasturtium, balsam and portulaca seed usually can be sown outside with success about the second or third week in May. Sow sweet peas in May. Do not plant where they will be shaded by trees. If you can, make the rows run north and south. Dig the soil deeply and work in well-rotted stable manure. The manure should be sufficiently deep not to touch the seed. Plant the seed in trenches at first, covering only with two inches of soil. As the plants develop gradually hoe in more soil. If the soil is sandy, the seeds will stand more earth over them than will those in soil that is of a clayey nature.

Corms or bulbs of gladioli can be planted towards the end of May and even earlier in some localities. Plant the bulbs three or four inches deep and about six or eight inches apart, whether they are planted in clumps or in rows. Dig the ground thoroughly before planting. Dahlia roots also may be planted towards the end of the month. Canna roots should not be planted until after the middle of June.

There is not a better annual climber for covering trellis work, fences or rockeries than Cobea scandens. Sow a few seeds at once and keep them in the window or a hotbed. About three seeds in a three or four-inch pot will be sufficient. They will not need re-potting before planting out as they do not transplant readily if separated. Use rather light, sandy soil to sow the seeds in and cover them with about a quarter of an inch of soil. Keep the soil in the pots moist. They will be ready to transplant outside some time in June. A rich, light soil suits best. Plant the whole pot of plants together, whether there be one, two or three plants in the pot.

If it is necessary to dig up the spring flowering bulbs when they are out of flower so as to set out other plants, the bulbs should be lifted and heeled in, just below the ground in some place out of the way, and left there until July. The bulbs should then be lifted and kept in a dry, cool shed until they are required again for planting in the fall.

If you intend planting some herbaceous perennials in the border, consult the table on another page. It will tell you the kinds of perennials with the color of their flowers that bloom in each month during the season. By selecting judiciously, you may have a succession of bloom from early spring until frost comes in the fall.

LAWN-MAKING

Do you intend making a lawn? If the lot is small have the surface of the lawn level. Soils from excavations and cellars should be removed and replaced with a rich, retentive loam. If the soil does not need replacing, dig it deeply and, when digging, do so evenly. Do not dig to a depth of a foot in one place and only a few inches in another. Such a practice is noticeable later on in the character of the grass that grows. Before sowing seed, have the surface as fine and smooth as possible. The creation of a good permanent sod depends as much upon the preparation of the soil as on anything else. Sow the seed while the soil is freshly disturbed. Sow early in the morning, or on a still day. Sow liberally and evenly. In another column, a lawn mixture is recommended. After sowing, rake and roll. Particular care should be given to all details in lawn making. The lawn is the basis of the whole scheme of decorative gardening.

Lantana Delicatissima

The illustration on the preceding page represents a plant which has been growing in a wire hanging basket for about three years, at the home of Mr. A. Alexander Hamilton. The basket is lined with about two inches of sphagnum moss and filled with a light soil finely sifted and kept carefully watered. It hangs with the other hanging baskets of begonias, Asparagus sprengeri and so forth, under the apple trees in the garden all summer. The flowers are of a delicate rosy pink color.

Repairing Lawns

No matter how well cared for, dead patches and bare spots will appear in the lawn. They may be the result of accident, of tramping in beaten paths, of damage by footwear under hammocks and near settees, or they may be the result of lack of attention and care in the management of the turf. The time to repair such spots is in spring. When worn completely bare and if the area is not too large, the repairing is best done by the use of sods. Cut a square area about the injured patch and remove the old sod surface and soil from within this square to the depth of a sod. Roughen the surface of the soil with a rake. Lay the sod in strips closely together. Pound firmly with the back of a spade, water immediately and continue to water until the new sod has made a union with the earth beneath.

When not necessary or desirable to use sod, clean and loosen the soil with the rake and sow seed. The best seed for lawns is Kentucky blue grass. It is the mainstay of a durable greensward. In a lawn mixture, Red Top is valuable, but it does not do so well when sown alone. White clover grows closely to the ground, fills up the spaces between other grasses and should have a place in a lawn mixture. A good combination for lawns in this country is made up of these three grasses, equal parts by weight. Sow at the rate of about one quart to a square rod.

The Night-scented Stock

A hardy annual that gives off a delicious fragrance at night is the Night-scented Stock, *Matthiola bicornis*. It has a straggly habit and inconspicuous pink flowers that are scentless by day and very fragrant by night.

Sow the seed in the open ground just as soon as the soil is in good condition to work. Later on, thin them somewhat, but not enough to prevent them growing in a compact mass. As they are rather weak-stemmed, the plants require the support of each other.

You will not be interested in the flower until it reaches maturity. When growing, the plants with their inconspicuous grayish-green foliage are not beautiful, and, therefore, they are best planted in a mass in some retired spot. An excellent place for them is near the verandah where you are accustomed to sit. Their delightful odor will add another charm to the evening hours.

Some everlastings should be planted for making winter bouquets and decorations, and for filling vases. They never fade. These delicate, graceful flowers will last for years if cut in bud and bloom and dried in the shade.—N. S. Dunlop, Floral Dept. C.P.R., Montreal.

Mushrooms and Toadstools: How to Know Them

Prof. Wm. Lochhead, Macdonald College, Ste. Anne de Bellevue, Quebec

IN the popular mind, mushrooms differ from toadstools in the important particular that the former are edible and of commercial value,

The Smooth Lepiota—Edible

while the latter are poisonous and of no value whatever. To the botanists, however, the terms are usually synonymous, and the word "mushroom" is used to comprise all forms whether poisonous or not. For example, Professor Atkinson, of Cornell University, calls his book on the subject: "Mushrooms, Edible and Poisonous." The fact remains that there are poisonous forms, call them what we will, many of which look so much like the non-poisonous forms that only experts can distinguish them. The number of edible mush rooms is large. The *connoisseur* often is in a position to enjoy in safety many a delicious mess when it would be dangerous for the uninformed to indulge for himself.

HOW A MUSHROOM GROWS

When the spores find suitable conditions they sprout and produce a mass of white threads and cords called the "mycelium." This mycelium when grown in compost and dried forms the "spawn," as sold by seed dealers. Under suitable conditions the mycelium grows and feeds on the decomposing organic matter in the soil. Small growths appear after a time on the mycelium as "buttons," which soon shoot up above the surface and take on the umbrella form of mushrooms. The "umbrella" is in reality only the fruiting portion of the mushroom. It grows and develops very rapidly. A new crop is ready every morning, but it must not be supposed that the entire mushroom plant develops in a single night. It has had a considerable period of growth in the soil invisible to the ordinary observer.

The common field mushroom, *Agaricus campestris*, of the late summer and autumn, is a form that is easily recognized even by the amateur. The cap is nearly smooth, white or brownish white, and the flesh is white; the gills underneath the cap do not quite touch the stem, are white when young, then pink, and later brown when ripe. There is a thin

The Common Mushroom—Edible

"collar" or ring on the stem; the stem is white, tapers slightly to the base, and is solid, though less firm at the centre. If the stem is cut off and the cap laid with the gills down upon a sheet of white paper away from drafts of air a "spore-print" can be obtained in a few hours. When a mushroom is ripe the spores fall readily from the sides of the gills where they are formed, so the spore-print is nothing more than the fallen spores.

The color of the spores is of importance in the identification of mushrooms, for there are mushrooms with black spores, some with brown spores, some with pink spores, some with reddish-brown spores, and some with white spores. For example a species, the Smooth Lepiota, *Lepiota naucina*, is very common, and is picked and eaten in large numbers. It has white spores, and the stem is somewhat hollow and slightly swollen at the base. Another species, the Deadly Amanita, *Amanita phalloides*, resembling both the common mushroom and the smooth Lepiota in color and general appearance, is deadly poisonous. Is is largely responsible for the many cases of mushroom poisoning. It has white spores; sometimes the gills have a pinkish tinge, but the main difference is the presence of a "cup" at the base which holds the stem. Sometimes this cup is left in the ground when the mushroom is picked, and the novice has nothing to distinguish it from the Lepiota. Most of the other species of Amanita are highly colored, so that they are not often eaten by mistake. But all highly colored forms are not poisonous. In fact there seems to be no absolute rule for distinguishing the poisonous from the non-poisonous forms.

Of the more common edible fungi are the Oyster Agarics, *Pleurotus spp.*, the Horsetail Agaric, *Coprinus comatus*, the Chanterelle, *Cantharellus sp.*, the Fairy-ring Fungus, *Marasmius oreades*, the Milk Fungus, *Lactarius deliciosus*, the

The Deadly Amanita—Poisonous

Edible Boletus, *Boletus sp.*, the Beefsteak Fungus, *Fistulina hepatica*, the Common Morel, *Morchella esculenta*;

but space forbids any attempt at description of these forms.

OBSERVE THIS WARNING

If mushroom-eaters will observe the following "Don'ts," little danger need be feared in eating the forms that stand the test:

Don't eat a mushroom that grows out of a little cup at the base.

Don't eat a mushroom that is highly colored.

Don't eat a mushroom that changes color soon after its surface is bruised or broken.

Don't eat a mushroom that has a milky juice.

The Horse-tail Mushroom—Edible

Don't eat a mushroom that has a sticky or slimy cap.

Don't eat a mushroom that has a pungent odor.

Don't eat a mushroom in the "button" stage, or after the flesh has begun to decay.

All the many popular tests for recognizing poisonous mushrooms are worthless. The "silver" test does not hold good, nor does boiling in milk or vinegar render the poisons harmless. In some mycological societies for the study of fungi, there is an important officer called the "mycophagist" whose duty is to sample all the new forms found by the members as to whether they are poisonous or not. Unless a mycophagist is available, the amateur should err on safety's side and give heed to the "don'ts" above mentioned.

Planting Trees and Shrubs

When buying trees and shrubs for planting on the lawn ask the nurseryman to supply specimens of good quality and of medium size for the variety. Very large trees should not be moved only in winter. When the trees are received from the nursery, plant them at once, or if that cannot be done, heel them in so that the roots will not be exposed to the air, and leave them there until it is convenient for planting. This practice is particularly necessary in the care of young evergreens. By heeling-in is meant the temporary covering of the roots of plants in order to preserve or protect them till in permanent quarters.

When planting dig the hole large enough to take in the roots without cramping. Have the hole as large, if not larger, at the bottom than at the top. Do not plant too deeply. Set at about the same depth as the trees stood in the nursery. This may be determined by the markings of earth at the bottom of the trunk. Allow about two inches for settling. Work the fresh earth around the roots and under them. Shake the tree backwards and forwards to fill all the spaces, then tramp and pack the soil firmly layer by layer. Air spaces cause decay, and eventually death. Plant in the evenings or on damp days. If the trees when set are exposed to strong winds or to injury by animals, it would be well to tie them to stakes, and to protect them by means of tree guards.

Hardy Climbers

The following list gives a few of the most suitable kinds of climbing plants. Those marked with an asterisk are particularly recommended where the number must be restricted to fewer kinds. All are perennials, growing 10 to 20 feet. The list was prepared by Mr. Wm. Hunt, Florist at the Ontario Agricultural College, Guelph.

*Ampelopsis quinquefolia (Virginia Creeper).

*Ampelopsis hirsuta (Virginia Creeper), clings to brick and stone walls.

Aristolochia sipho (Dutchman's Pipe).

Clematis coccinea, large-flowering, coral red.

Clematis Duchess of Edinburgh, large-flowering, double white.

*Clematis Jackmanni, large-flowering, violet purple.

Clematis montana grandiflora, white.

*Clematis paniculata, small-flowering, white.

Clematis Ramona, large-flowering, lavender.

Clematis Virginiana (Virgin's Bower), small-flowering, white.

Clematis vitalba (Traveller's Joy), white.

Dioscorea batatus (Cinnamon Vine).

Euonymus radicans (Climbing Spindle Tree).

*Lonicera Halleana (Japan Honeysuckle).

*Lonicera Belgica (Dutch Honeysuckle).

Lycium Chinense (Matrimony Vine).

Tecoma or Bignonia radicans (Trumpet flower)

A Planting Table for Gardeners

CROP	DISTANCE APART IN ROWS	DEPTH TO PLANT	SEEDS OR PLANTS FOR 100 FEET OF ROW	TIME TO MATURE
Artichoke, globe	2½ feet	1 to 2 inches	½ ounce	15 months.
Artichoke, Jerusalem	1½ feet	2 to 3 inches	2 quarts tubers	6 to 8 months.
Asparagus plants	1½ feet	3 to 5 inches	60 to 80 plants	1 to 2 years
Beans, bush	24 inches	½ to 2 inches	1 pint	40 to 65 days.
Beans, pole	36 inches	1 to 2 inches	½ pint	50 to 80 days
Beets	2 inches	1 to 2 inches	2 ounces	60 to 80 days.
Brussels sprouts	20 inches	½ inch	¼ ounce	90 to 120 days.
Cabbage	20 inches	½ inch	¼ ounce	90 to 130 days.
Cardoon	15 inches	1 to 2 inches	½ ounce	5 to 6 months.
Carrot	6 to 12 inches	½ inch	1 ounce	75 to 110 days.
Celery	6 inches	⅛ inch	¼ ounce	120 to 150 days.
Chicory	6 inches	½ inch	¼ ounce	5 to 6 months.
Citron	8 to 10 feet	1 to 2 inches	1 ounce	100 to 130 days.
Corn, sweet	4 to 7 inches	1 to 2 inches	¼ pint	60 to 100 days.
Cucumber	5 feet	1 to 2 inches	½ ounce	60 to 80 days.
Eggplant	22 inches	½ to 1 inch	½ ounce	100 to 140 days.
Endive	10 inches	½ to 1 inch	1 ounce	90 to 180 days.
Horseradish	17 inches	3 to 4 inches	70 roots	1 to 2 years.
Kale or borecole	21 inches	½ inch	¼ ounce	90 to 120 days.
Kohl rabi	6 inches	½ inch	¼ ounce	60 to 80 days.
Leek	6 inches	1 inch	½ ounce	120 to 180 days.
Lettuce	3 to 10 inches	½ inch	½ ounce	60 to 90 days.
Muskmelon	6 feet, hills	1 to 2 inches	½ ounce	120 to 150 days.
Onion seed	3 inches	½ to 1 inch	1 ounce	130 to 150 days.
Onion sets	3 inches	1 to 2 inches	1 quart	90 to 120 days.
Parsley	3 to 6 inches	½ inch	¼ ounce	90 to 120 days.
Parsnip	2 inches	½ to 1 inch	½ ounce	125 to 160 days.
Peas	15 to foot	2 to 3 inches	1 to 2 pints	40 to 80 days.
Pepper	15 to 18 inches	½ inch	⅛ ounce	100 to 140 days.
Potato, Irish	16 inches	4 inches	3 to 9 bushels per acre	80 to 140 days.
Pumpkin	8 to 12 feet, hills	1 to 2 inches	½ ounce	100 to 140 days.
Radish	1 inch	½ to 1 inch	1 ounce	20 to 40 days
Rhubarb, plants	3 feet	2 to 3 inches	33 plants	1 to 3 years.
Salsify	2 to 4 inches	½ to 1 inch	1 ounce	120 to 180 days.
Spinach	2 inches	1 to 2 inches	1 ounce	30 to 60 days.
Squash, summer	3 to 4 feet, hills	1 to 2 inches	½ ounce	60 to 80 days.
Squash, winter	7 to 9 feet, hills	1 to 2 inches	½ ounce	120 to 160 days.
Tomato	3 or 4 feet	½ to 1 inch	⅛ ounce	100 to 140 days.
Vegetable marrow	8 to 9 feet, hills	1 to 2 inches	½ ounce	110 to 140 days.

Pointers for Market Gardeners

A. McMeans, Ontario Agricultural College, Guelph, Ont.

THE best early varieties of beans are Keeney's Rustless and Wardwell's Kidney Wax. For medium, nothing is better than the Davis White Wax. The green beans are not appreciated as they should be by the people of Ontario; a good variety is Valentine.

BEETS

I used to grow Egyptian for transplanting and Eclipse for early; but, having tested 55 varieties at the college this season, I would add to these, Model. Its shape is globular; size and season, medium; color and quality, good.

CABBAGE

Early Jersey Wakefield is best for early, to be followed by Early Summer or All-Head. For winter, Danish Ball-Head is an improvement. Half Head, Hollander and Diamond Winter are all good. For an extremely late one, the Houser is good, but inclined to be a little coarse.

BRUSSELS SPROUTS

This is a vegetable that will bear booming. Cultivate your market for it. Boom it. Get people to try it, till it is appreciated as it should be. On the other side of the line they are growing it extensively. The wholesale price in New York city is from 6 to 10 cents a quart.

CARROTS

It is hard to beat the Chantenay; but in our variety tests, Rubicon outyielded it. It seems to be an improved Chantenay. In size, it is larger.

CORN

Early Cory, Crosby's, Kendell's Early Giant, Early Evergreen, Stowell's Evergreen and Country Gentleman will give a succession for the private or amateur gardener. Grow, also, Golden Bartam and Black Mexican. They are both good in flavor. Be careful not to plant them near your other sweet corn or they may pollenize some of it, causing some grains to be of yellow or black color.

LETTUCE

For under glass, Grand Rapids; out doors, Hanson. This latter variety is also sold under the following names: Gardener's Favorite, Nonpareil, and Hamilton Market. Toronto Gem and Excelsior are too well known to need description. Unrivalled is about the same as Big Boston, slightly lighter green and without that brownish tinge on the borders. For quality, Deacon is good; it is sold also under the names of Big Head, Golden Heart, Summer Gem, St. Louis Butter, Triumph and White Russian. It is a buttery cabbage, mid-season, slow to shoot to seed; head, globular, or slightly flattened; color, light grayish green; quality, excellent. Black Seeded Simpson should not be forgotten if you prefer the loose-leaf or cutting lettuce.

PARSNIP

Hollow Crown is preferred by most people; personally, I prefer the Guernsey. It is about the same circumference as Hollow Crown, but is shorter and holds its size; that is, it does not taper off as much as the Hollow Crown. It will crop equally as well and, when you take into consideration how much easier it is to harvest, it is an extra inducement to grow the shorter variety.

RADISH

For forcing, Rosy Gem, Ruby Pearl, Scarlet Turnip Forcing, in the turnip shape and, in olive shape, Scarlet Conical; out doors, Scarlet Turnip White Tipped, French Breakfast, Chartier, Long Scarlet Short Tip in the reds; White Box, Long White Vienna and Icicle in the white; and Delicious, in golden. China Rose and Black Spanish for winter.

"To prevent onion smut, I soak the seed, previous to planting in coal oil. A teaspoonful of oil is sufficient for one pound of seed. I pour it on the seed, stir well, and allow to dry before planting."—J. W. Rush, Humber Bay, Ont.

Surprise, Nott's Excelsior, Gradus and Stratagem will give a nice succession of peas in the market garden.

Outremont Beauty Muskmelon

It is a matter of pride to Canadians to see their products received with favor and preference in the markets of the United States. One of the largest and finest of all muskmelons, the Outrement Beauty, grown largely in the vicinity of Montreal, is being offered to the trade, in competition with Rocky Ford and other standard varieties, by seed firms in the United States. Montreal growers get high prices for the fruit in the New York markets. Indications point to a big market in the future for Canadian melons in the United States. The illustration shows a specimen of this melon with an ordinary Rocky Ford melon placed on top for contrast, also a two-foot rule on bottom and side.

How to Start a Plantation of Onions

E. G. Malcolm, Scotland, Ontario

TO grow onions successfully, it is necessary to have a good loam or sandy loam soil. It should be made rich by the application of well-rotted stable manure, at the rate of 40 to 50 tons an acre. I do not use any of the onion fertilizers, but use a large amount of wood ashes and salt, from 400 to 600 pounds to the acre, applied after plowing and sometimes just before sowing.

Plow as early as possible in the spring to preserve moisture. Prepare the seed-bed by rolling with a heavy roller (unless it is clayey, when rolling should not be done). Then put on your planker, as it gives a nice, mellow seed-bed.

Last year a few growers plowed early in the fall and worked the ground well, and in the spring top-dressed with manure, but of course it was well-rotted and fine, so that it would not interfere with cultivation. Out of four experiments, three appeared to produce a better crop than by plowing in the spring. The one had the appearance of being an exceptional good crop early in the season; but, from some cause, the onions did not "bottom up" well. They were small in size and contained a great amount of picklers. The previous year, this piece of ground produced the best onions in the vicinity. So great a change I am unable to account for.

The choice of the variety or kind of onion to grow has to be determined by yourself, as some markets seek one kind and some another. In our section we grow mostly the yellow varieties. Some Southport, but a greater amount of Globe Danvers. There is a growing demand for Red Globes. For our market, I would recommend the Yellow Globe Danvers and Red Globes.

After choosing the variety comes the buying of seed. In that, a person should be very careful; for, upon the seed, depends the crop to a great extent. The very best seed that can be procured is the cheapest in the long run if it does cost more. Poor seed is dear at any price. Get seed that is sure to germinate.

Do not be in too great a hurry to get the seed in the ground. The soil should be thoroughly warmed up before sowing, or the weeds will get started before the onions.

We use hand-drills, Little Giant Iron Age, and sow in rows 14 inches apart. When the onions make their appearance through the ground, start harrowing. By that means, you will loosen up the ground and kill weeds. The more you work the harrow the less weeding you will have to do by hand. The harrow that is used is made from light material, pine or elm strips, three-quarters of an inch by two inches. It is three feet by four feet in size and has common spike nails for teeth. A strap or rope is attached to pull it with. One man will go over a couple of acres in a half or three quarters of a day. For horse-power, have the harrow 12 to 15 feet long and 3 feet wide. One would think that this way would be injurious to the crop. A few onions would be destroyed by the horse, but the amount of time saved far exceeds the loss. When the crop is ready to harvest, you would not know that a horse had been on the ground.

The Culture of Late Cabbage

S. B. Courtis, Toronto, Ont.

HAVING been gardening in the vicinity of Toronto for a number of years on soil varying from light sand to the stiffest clay, I beg to offer a few suggestions on growing late cabbage from my experience and observations. I usually select a high, comparatively poor piece of land for my seed bed, and sow the seed rather thickly about May 10, in rows about 12 inches apart. I keep the soil clean until ready. The first week in July should find them in good shape for planting. Should any part of the bed show too much growth, I insert a fork under them, give it a sharp lift, and let it fall back. This will check them.

My idea of a good plant is one rather slim, drawn up six inches in the leg and of a dry, hard appearance. My reason for this is that, when planted out with the crown well out of the ground, the ease of working, especially with a cultivator, is a very great consideration. My observations for over 25 years has convinced me that such plants will make equally as good heads as the short ones.

Preparing the ground is a matter that depends almost entirely on circumstances. It does not matter when or how as long as the ground is in the condition required. My own plan generally is to set apart the piece wanted, give it a good coat of manure and plow twice. The method of treating land that has been cropped to something else, by just turning it over once for late cabbage, is accountable for such a large amount of rubbish brought in by our gardeners. Occasionally, I have raised a good second crop, but every condition must be favorable, and for the average gardener, it cannot be depended upon.

The time to plant is, say, from July 10 to 15. Prepare the land and mark it 30 inches from row to row (in the case of a large patch, mark it both ways). At this date, the weather is usually hot and dry. I never wait for showers, but plant right ahead until finished. In case the plants need water, I put three or four barrels in a wagon, drive in the patch 50 or 60 feet, and water before putting in the plants. Plant about two feet apart in rows.

As to varieties, the following are best: St. Denis, German Brunswick, Danish Bald Head, and Chester Savoy. These can be bought at any seed store. The St. Denis is a fine all-round cabbage. It requires land in good condition to develop it properly. The German Brunswick will form the largest and most even heads on poor soil of any variety that I know. The Danish Bald Head is one of the best for rich, sandy soil. It grows rather long in stem, but the solidity and good qualities are perfect. The Chester Savoy is good in every respect. The object of the grower should be (at least it has been mine) to have, by the middle of November, a healthy, clean, medium-sized, compact cabbage. That is what the trade requires. I think these are the most profitable to the grower as they are usually sold by the dozen and not by weight

I would say to a farmer who intends to plant a patch for the first time that ground that will grow a good crop of potatoes will produce a fair crop of cabbage. Gardeners are aware of the fact that Canada is made a dumping ground for the whole continent, and the way matters stand to-day they cannot help themselves in many lines. I see no reason, however, why every winter cabbage that is used in Toronto cannot be raised in the vicinity. There are hundreds of acres of land in easy distance of the market that is second to none for the market gardener. With the abundance of manure that can be obtained for nothing, the good roads, and the splendid prices prevailing I think it is a pity that so much money should be sent out of the city and in some cases, out of Canada, that could be easily kept here if an effort were made.

OUR QUESTION AND ANSWER DEPARTMENT

Readers of The Horticulturist are Invited to Submit Questions on any Phase of Horticultural Work

Site for Apple Orchard

I have a piece of land that is low and flat, yet rich and fertile. It has never been cultivated On one side is a spring pond, and on the other runs a river. In the event of ice jams in spring, the land is submerged for a few days only. It is well protected by hills on all sides. Would such be suitable for growing apples?—W.A.W., Brampton, Ont.

From the description given we should not consider the site a very suitable one for an orchard. Standing water, even for a few days, in an orchard may cause serious loss from root killing, as when the soil becomes saturated with water and freezes, the roots of the trees are very liable to be destroyed. Such low lying ground would probably also not drain well in summer, and apple trees will not grow well where there is a wet subsoil.—Answered by W. T. Macoun, C.E.F., Ottawa.

Apply Ashes in Spring

How heavily should wood ashes be sown in orchards, and will they hurt a growing cover crop such as vetch or crimson clover; or should they be applied just before turning under, and if so would they not be too late to benefit the existing crop?—R.R., St. Catharines, Ont.

W. T. Macoun, Horticulturist, Experimental Farm, Ottawa.—Wood ashes are usually applied at the rate of 75 to 80 bushels to the acre. Applied at this strength they would not hurt a growing cover crop. In some spots where the ashes might be applied too thick, slight injury might be done, but on the whole it would not cause injury. We should prefer applying ashes the following spring, after the cover crop has been turned under, as while the ashes might increase the crop of vetch or crimson clover, it would probably do more good if applied in the spring.

H. L. Hutt, O.A.C., Guelph.—I would not hesitate to apply 100 bushels an acre if they could be obtained for not more than five or six cents a bushel. Fifty bushels an acre is considered a good application. There is not much danger of applying too large quantities, as the potash and phosphoric acid is mostly retained in the soil and not lost in the drainage water, as is often the case with soluble nitrogenous fertilizers. The best time to apply ashes is just before turning under the cover crop in the spring. The trees would then get the full benefit of the application for their season's growth, and cover crops following would also be benefited by the potash and phosphoric acid still held in the soil.

L. R. Taft, Michigan Agricultural College.—Wood ashes can be used with good results at the rate of 50 to 100 bushels an acre, according to the condition of the soil and age of the trees. In old orchards they should be spread broadcast, and with young trees they should be applied over a circle somewhat larger than the head of the tree. If scattered evenly, they will do no injury to cover crops, but if a shovelful is thrown in a place, the plants with which it comes in contact will be destroyed. To get the best results the application should be made quite early in the spring.

A Border of Roses

I have a flower border, 30 x 3 feet, on the south side of a lattice fence. Would it serve for a rose bed? If so, what kinds should I plant and how many bushes?—M. M., Toronto

The flower border mentioned should be quite suitable for a rose bed, providing it is not overshadowed by trees or buildings. Roses like an open, airy, sunny position, and a rich, clay-loam, well-drained soil. Hardy hybrid perpetual roses on their own roots would be the best kind of bush roses to plant. Ten bushes planted about 32 inches apart in a row in the centre of the bed would be sufficient, the first bush to be planted 20 inches from end of bed. The following are good, hardy, well-tested varieties: Baron de Bonstetten, Prince Camille de Rohan, Gen. Jacqueminot, Mme. Charles Wood, Marshal P. Wilder, all dark red or crimson; Mrs. John Laing, Mme. Gabriel Luizet, Anna de Diesbach, pink; and Margaret Dickson, white. A moss rose or two could be substituted for any of these; Blanche Moreau or Henry Martin are good varieties. Climbing roses could be trained on the lattice fence. Crimson Rambler, Baltimore Belle, Yellow Rambler and Caroline Goderich are good climbing roses, the two first named being the best.—Answered by Wm. Hunt, O.A.C., Guelph.

Rex Begonias

I have a fine rex begonia. It has ten large leaves and about a dozen small ones. Do they need any special kind of fertilizer? Do the plants need much sunlight?—B.T., Mount Vernon, Ont.

Any of the ordinary commercial plant foods or fertilizers can be used for rex begonias. Use the fertilizer at about one-half the strength usually recommended. Rex begonias do not like direct sunshine. Partial shade suits them best.—Answered by Wm. Hunt, O.A.C., Guelph.

Planting Sugar Maples

I intend setting out a number of sugar maples this spring. Kindly advise when to transplant, what size of tree is most likely to grow, and how they should be trimmed.—R.T., Prince Albert, Ont.

Sugar maples trees should be planted as soon after the ground is dry in the spring as possible, although they may be planted successfully any time before the leaves expand. Trees from two to three inches in diameter are the most satisfactory to plant, as they are thick enough to withstand the wind and are not too old. Much larger trees than these can be planted with success, but the larger the tree the more difficult it is to transplant. Instead of pruning to a bare pole, as is so often done, we prefer pruning back the branches of the top very severely, but not removing them, and leaving some small twigs to enable the tree to make leaf growth as soon as possible.—Answered by W. T. Macoun, Horticulturist, C.E.F., Ottawa.

Mite on Roses

A nice rose tree I have is not doing well. What is good to put on rose trees?—Mrs. J.A.G., Durham, Ont.

It is probably the red spider or mite that is attacking the under side of the rose leaves and that is causing the trouble. Sprinkle the plant, especially on the under side of the leaves, with water every day. A little finely powdered sulphur or flowers of sulphur sprinkled underneath the leaves before the leaves are dry will also help to keep down this pest. The plant mentioned may perhaps require some fertilizer. Roses require liberal treatment in the matter of fertilizers to secure the best results possible.—Answered by Wm. Hunt, O.A.C., Guelph.

Sorting Seeds

I have some flower and vegetable seeds that I wish to sort so as to sow seeds that are even in size. How is it best done?—H.L., Peterboro, Ont.

Use sieves having meshes of a size to suit the different varieties of seeds to be sorted. These sieves can be made very easily by tacking a piece of muslin, cheese cloth, wire mosquito netting, or wire having a larger mesh, to the bottom of a light wooden frame about 10 or 12 inches square and two inches deep. The sides and ends of any small light box of about the size mentioned will answer very well.—Answered by Wm. Hunt O.A.C., Guelph.

The Canadian Horticulturist

Published by The Horticultural Publishing Company, Limited

The Only Horticultural Magazine in the Dominion

Official Organ of British Columbia, Ontario, Quebec and Prince Edward Island Fruit Growers' Associations and of the Ontario Vegetable Growers' Association

H. Bronson Cowan, Managing Editor and Business Manager
A. B. Cutting, B.S.A., Horticultural Editor
W. G. Rook, Advertising Manager
Garrett Wall, Circulation Manager

GREAT BRITAIN

Frank Fletcher, 135 Henrietta Street, Old Trafford, Manchester, Eng., Advertising and Circulation Manager

1. The Canadian Horticulturist is published on the 25th day of the month preceding date of issue.

2. Subscription Price in Canada and Great Britain 50 cents a year, three years $1.20. For United States and local subscriptions in Toronto, 25c. extra a year is charged for postage. Foreign subscriptions, $1.00 a year, including postage.

3. Remittances should be made by Post Office or Money Express Order, or Registered Letter. Postage Stamps accepted for amounts less than $1.00.

4. Discontinuances—Responsible subscribers will continue to receive The Horticulturist until the publishers are notified by letter to discontinue, when all arrearages must be paid.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising Rates quoted on application. Sworn circulation 6,500. Copy received up to the 18th. Responsible representatives wanted in towns and cities.

7. Articles and Illustrations for publication will be thankfully received by the editor.

Our Protective Policy

We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason to believe that any of our advertisers are unreliable, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant we will expose them through the columns of the paper. Thus, we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefits of this Protective Policy is that you include in all your letters to advertisers the words "I saw your ad. in The Canadian Horticulturist." Complaints should be sent to us as soon as possible after reason for dissatisfaction has been found.

Communications should be addressed:

THE CANADIAN HORTICULTURIST,
506-7-8 Manning Chambers,
TORONTO, CANADA

FRUIT INSPECTION

In a letter to The Canadian Horticulturist recently, Mr. J. A. Ruddick, Commissioner of Dairying and Cold Storage, including fruit, takes exception to an editorial that appeared in our April issue in which we stated that the Minister of Agriculture at Ottawa had seen fit to dispense with, temporarily, the services of two of the fruit inspectors. Mr. Ruddick writes:

> "A number of inspectors have always been employed temporarily during the apple season. These men are laid off during the period of the year when there is absolutely nothing for them to do. The staff of fruit inspectors is not being reduced, but, on the contrary, has been increased during the past year."

In reply we beg leave to say: First, that the number of inspectors is not nearly large enough to watch the fruit interests of the Dominion; second, that when the men were laid off this winter, there *was* something for them to do; and third, that the increase in the staff during the past year to the extent of one man is commendable, but not nearly sufficient. The percentage of export apples seen by the fruit inspectors is infinitesimal. Hundreds of thousands of barrels leave the country unseen and uninspected. During the past winter, practically all the inspectors in Ontario were employed within a radius of fifteen miles. 'Tis true, that the larger percentage of stored apples in the province was there, but in other districts there were stored apples also. During the winter, some 30,000 barrels were stored west of Toronto, not including the city. When the inspector employed in that district was laid off, there were at least 10,000 barrels west of Toronto still to be inspected. Does this not indicate that there was something for him to do? Had all the lots of export apples stored in Ontario last winter been only partially inspected, a staff of at least twenty inspectors should have been employed. Instead of that, the present small number was decreased by two.

Now that this question has been referred to, we desire to state that while the inspection of fruit has accomplished splendid results, and while the provisions of the Fruit Marks Act have been enforced in a most commendable manner by the Dominion Department of Agriculture, yet there has been a feeling for some time that a decided extension of the work is required. The inspectors are doing good work, but they cannot begin to cope with the situation. The permanent staff should be greatly enlarged. Additional inspectors are needed in the west. Requests have been made frequently for a special inspector for the Niagara District. The cooperative movement in Ontario has reached the stage where one inspector might be detailed with advantage to oversee the packing done by these associations, and to assist them in securing a uniform pack. They have requested that this should be done. More assistance is needed at Montreal and in the Maritime Provinces. In slack times these inspectors, or many of them, might be utilized to attend meetings and assist otherwise in encouraging the cooperative handling of fruit. Some of this work has been done this year with most beneficial results. It would be better that some of these men should be comparatively idle for a few months of the year, than that the inspection of fruit should not be performed thoroughly when shipping is in progress.

The salaries paid the inspectors, in most cases, are inadequate. It is a wonder that the department has been able to retain such an excellent staff of inspectors. Unless a decided increase is given soon, some of the best men will leave the service and it will be a most difficult matter, if not impossible, to refill their places at the prevailing rate of remuneration.

Mr. Ruddick concludes his letter to us, by saying:

> "Your mention of the attempt to evade the Fruit Marks Act by re-marking the apples in a foreign country, outside the jurisdiction of the Fruit Marks Act, is not a very good argument in favor of increasing the staff of inspectors. It seems to me that the fact that the exporters were obliged to attempt this sort of thing is very good proof of the close inspection which prevented improper marking of the packages in Canada."

We admit that the incident referred to is proof that the inspection, where the exporter implicated was in the habit of doing most of his packing, was thorough, but that does not prove that it is equally thorough elsewhere. The fact is, that the exporter referred to has broken the law time after time, and in such a flagrant manner that the department of late has made his work the object of unusually close supervision. There are other exporters, however, who are breaking the law constantly. Were these men watched as carefully, they too might find it necessary to attempt to conduct their fraudulent practices elsewhere. We know of exporters who have instructed their packers to pack dishonestly because they have known that for every barrel on which they might be detected and fined there would be hundreds of barrels that would leave the country without being inspected. As long as this continues to be the case, reason will remain for the belief that our system of fruit inspection is not as thorough as it should be, and that the staff of inspectors instead of being reduced temporarily should be increased permanently. It is probable that were the work of inspection under the control of a fruit commissioner, it would be conducted more thoroughly.

ATTORNEY-GENERAL SHOULD ACT

Definite charges have been made, by the Toronto *News*, against the Canadian Canners, Limited, of Hamilton, to the effect that it operates in restraint of trade and that it should be proceeded against as a combine by the Attorney-General for Ontario. The *News* has stated repeatedly that this company, through its control of the majority of the fruit and vegetable canning factories in Ontario, shuts out the independent canner from doing business with the wholesale houses; that it gives the wholesaler a discount or rebate of five per cent. as a reward for refusing to handle goods made by the independents, and that it arbitrarily lowers or raises the price, to suit its desires—whether to crush its competitors or to make half a million dollars by its mere fiat on prices.

This means, if these charges are true, that the thousands of fruit and vegetable growers in Ontario, who grow for canning factories, are at the mercy of this company, and that they are not receiving fair prices for their products. This condition has been suspected often by the growers, who have complained bitterly of the manner in which they have been treated in the matter of prices. The matter is so serious, we feel that the Ontario fruit and vegetable growers' associations should deal with it immediately by requesting Hon. Mr. Foy to conduct an investigation of the charges that have been made.

THE BONUS FOR SPRAYING

The bonus offered by the government of Ontario to fruit growers for the purchase of power sprayers will do much to benefit the industry in that province. Not only will it lessen the cost of orchard operations and help control the spread of orchard pests, but indirectly it will teach the growers the value of cooperation, which is just as important.

In Ontario the necessity for thorough spraying is becoming recognized generally. This is due in no small measure to the excellent educational work that has been accomplished by the Ontario Department of Agriculture. The department for some years has borne part of the cost of furnishing spraying material, and in some sections has operated spraying machines of its own. This latest move, therefore, is only the culmination of its previous pioneer work. Through the action of the department the growers are to be helped to help themselves, and that is the best form of assistance. Hon. Nelson Monteith, Minister of Agriculture for Ontario, deserves credit for the action he has taken. A similar move might be made with advantage by the Departments of Agriculture in one or two of the other provinces, notably Nova Scotia.

THE SAN JOSE SCALE SITUATION

The fact that fruit growers in Ontario are willing now to admit the presence of San Jose scale in their orchards and throughout their vicinity, is the best proof of how serious is the situation. As long as the growers would blind themselves to the fact and refuse to admit it for fear that they would injure the value of their property, it was impossible for the government or any person else to do anything to bring about an improvement, as none are so blind as those who will not see.

Now, however, the situation is changed. The growers in a number of sections are awake to the fact that if their orchards are to be saved, immediate action must be taken and the work be followed up persistently. The San Jose Scale Act should be revised. The government should have greater power to act and it should not hesitate to use that power As in many other matters of a similar nature, it has been proven that it is useless to leave such a law to be en-

forced by local inspectors, subject, as they are, to local influences.

One of the excellent features of the grant that has been made recently, through Hon. Nelson Monteith, to assist growers in the purchase of power sprayers, is that it will assist the growers to fight the scale. It has been announced that the Department of Agriculture intends to do what it can to further combat this pest. We would suggest that it might make a further grant to assist in the building and equipping of plants for boiling the lime-sulphur wash. Many growers, in San Jose scale-infested districts, feel that the cost of installing a well-equipped boiling plant is beyond their means. Were the government to grant a bonus of, say, fifty per cent. of the cost to organizations of five or more growers who desire to build it would aid greatly in the suppression of scale. It would be necessary to fix the minimum capacity of such plants and to regulate the cost per barrel of the mixture to growers. Assistance of this nature should receive favorable consideration by the Minister.

SAN JOSE SCALE ON SHRUBS

It is not generally known that San Jose Scale, the dreaded pest of the fruit orchard, is found on many ornamental trees and shrubs as well, but such is the fact. As the time for spraying is at hand, all who have trees or shrubs in their charge should look them over at once to find out their condition, and then, if necessary, have them sprayed. For the large fruit plantation, probably the lime-sulphur wash is the most effective remedy, but for city lots, parks, school grounds and so forth, there are other compounds that are more or less effective in checking the scale, so there is no difficulty on that score. The best of these is advertised in this issue of THE CANADIAN HORTICULTURIST. The Japan Quince, *Pyrus Japonica*, appears to be a great favorite of the scale, and the pest has been observed in this country on hawthorn, dogwood, mountain ash, privet, lilac, and various other kinds of ornamental trees and shrubs.

To prevent the scale spreading in cities and elsewhere in Canada, it has been suggested that all shrubs liable to become infested, or which have become so, be cut down every spring. This would be a good way to check the spread of the scale; it would answer for nurserymen who wish to propagate the stock or to sell it, but it would not suit those who wish to have shrubs and trees well established on their lawns. It is gratifying to know, therefore, that the numerous spraying compounds now obtainable render the treatment of the scale much less of a task to be feared than generally it is thought. Persistent and systematic work in the fruit orchard or on the lawn with efficient remedies is about all that is necessary. In addition, it would be a good thing if each person would report to his provincial agricultural college or to THE CANADIAN HORTICULTURIST the various trees and shrubs on which he finds the scale, and also the results of experiments that he may have conducted towards holding the pest in check.

In the enforcement of the Fruit Marks Act, the prevailing practice of the inspectors has been to lay the blame for fraudulent packing on the apple operators rather than on the man who actually did the work. This has remedied the situation to a noticeable extent. Often, however, the shipper or owner is only indirectly to blame. He may desire to handle apples that are packed according to law and, though instructed accordingly, his men will not do the work properly and honestly. These are the men—the packers—who do most of the damage. Recognizing this fact, the Fruit Division recently prosecuted a number of them. The department does not desire to put a hardship on the workingman, but, in the greater issue at stake, it is necessary to make him bear his portion of the responsibility. The packers are as liable to prosecution as the employers. When they learn this fact, they will do proper work for employers who have good intentions and be less liable to take "crooked" instructions from those whose intentions are dishonest. The Fruit Division is to be commended for the stand it has taken.

Much delay and annoyance has been caused fruit growers this spring by the railway companies. Some growers who bought spraying machines and other equipment for work this season have suffered loss through the non-delivery on time of the goods ordered. It is said that thousands of cars are being held for grain when "empties" are seriously lacking for the transportation of other commodities. Something should be done by the Railway Commission to bring about an equalization of the means for transportation, so as to ensure a better dispatch for all kinds of merchandise. We realize that the shortage of cars is general and affects many other commodities besides fruit, but this serves only to emphasize the necessity for adopting heroic measures, if necessary, to prevent the trade of the Dominion being seriously injured.

In our last issue we advised fruit growers to be on the watch for new insect and fungous pests. We have been informed since of an instance of the occurrence of the Brown-tail moth in a district not far from Kentville, Nova Scotia. As this is the only insect found on fruit trees, the larvæ of which occur inside silken nests in colonies at this time of year, there will be little trouble in fruit growers destroying all that they find. The nests are nearly always at the tips of the branches. Every nest now destroyed means the removal of several hundreds of destructive enemies from this year's crop, and possibly may prevent the establishment of this most pernicious enemy of the fruit grower. Specimens for identification and requests for information will be gladly received by Dr. James Fletcher, Dominion Entomologist, Central Experimental Farm, Ottawa. Every diligence should be used in stamping out the pest.

Fruit growers in British Columbia who buy nursery stock from eastern Canada, are caused much annoyance and loss by their orders having to be inspected at the coast rather than at a point on or near the eastern border of the province. Trees consigned to growers living in the eastern portion of British Columbia are carried to Vancouver, inspected and then returned to destination. This is an unnecessary and expensive procedure, that entails a hardship and a loss on both the growers and the nursery firms. The trouble can be remedied easily by establishing a station at Revelstoke. The Provincial Government has been petitioned frequently, by the growers, to take such action. Their requests should be granted at the earliest possible date.

A western United States fruit publication states editorially that one of its editors is the only editor of a fruit paper who is connected with the management of an organization of growers. While giving that editor full credit for his work, we wish to call attention to the fact that that statement was not founded on accurate information. While we do not like to blow, neither do we like to have our claims for fame ignored and denied in this manner, and therefore rise to remark that one of the editors of THE CANADIAN HORTICULTURIST, as secretary-treasurer of the Ontario Cooperative Fruit Growers' Association, is intimately in touch with the management of an organization that is composed of commercial fruit growers, and that is connected with the business side of fruit growing in Canada, the United States and in Europe. The managing editor of THE CANADIAN HORTICULTURIST is secretary-treasurer of the Ontario Vegetable Growers' Association, the Ontario Horticultural Association, and the Ontario Horticultural Exhibition. The management of THE CANADIAN HORTICULTURIST is connected directly with organizations that represent not only the fruit interests, but all branches of horticulture. There now! We wonder if he will take it back or will we have to call him names?

The Ontario Government has formulated a plan for the teaching of agriculture in a number of high schools. The scheme, presumably will be carried into effect as soon as the necessary legislation is obtained. High School boards wishing to establish one of these courses may appoint a teacher recommended by the Ontario Department of Agriculture, as a member of its teaching staff. Districts that are devoted almost entirely to the growing of fruits, vegetables or to some other horticultural product, should take advantage of this opportunity to further agricultural education. These should demand, however, that teachers be appointed for such localities who are specialists in horticulture rather than in general agriculture.

The Ontario Vegetable Growers' Association this year is going to endeavor to obtain and publish a full report in regard to the vegetable canning industry of the province. This industry is largely in the hands of one of the best organized and tight-mouthed combines in the Dominion. The individual growers have no organization, and are in absolute ignorance of conditions in the canning sections where they do not reside. The association has a large contract on hand. but if its efforts are successful, or even only partially so, they will result in great benefit to the growers.

The time is ripe for a national movement looking towards a more general observance of Arbor Day in the schools of Canada. Unfortunately, the custom, of late years, has been waning in public favor, although need for its continuance never has been so great. Its revival might well be embodied in the agitation for reforestration. The ornamentation of school grounds, public parks and the home, as affected by the planting of trees, should be sufficient in itself to make the holiday one of national importance. Let the children in cities plant largely of the maple, so that Arbor Day enthusiasm may be infused with the spirit of patriotism.

In this column, in February last, we directed attention to the need for the appointment of e number of fumigation sub-inspectors in Ontarie during the shipping season, to superintend the work at the nurseries. The need for this move on the part of the Provincial Government is greater than ever, as the San Jose scale is spreading with alarming rapidity. The present season is almost past and nothing has been done. In their own interests, fruit growers should urge the government to take action in this important matter.

For work and equipment at the new fruit and vegetable station in the Niagara district, the Ontario Government has granted $15,000. Part of this amount is for buildings, and a part for the salary of the man who is to be appointed as director. As yet, no suitable man has been found to fill the position. On one or two occasions it was thought that a man had been secured, but circumstances willed otherwise. Until a director is appointed, the work carried on at the farm will be to prepare it for his arrival. It is to be hoped that the Government will be able to make an appointment at an early date; for, unless a director is secured soon, the work will be delayed another year.

Our cover illustration this month was made from a photograph taken in the Hillcrest Orchards, Kentville, N.S.

The Buyers and Growers to Blame

Ed. THE CANADIAN HORTICULTURIST: Caretaking apple growers feel that their line of business in Norfolk county will be hurt if Mr. McNeill's letters in the Jan., Feb. and March issues of THE CANADIAN HORTICULTURIST are not answered. I do not think that Mr McNeill's intentions were to harm any district in Ont., but to give the facts as he thought them to be. The only answer I can give, is that he was not familiar with this part of District No. 1. The whole trouble is the careless grower and the buyer, not the climate nor the varieties of trees planted.

This District No. 1 is the oldest settled part in Ont. Apple trees were set out here in advance of any other district, and up to the year 1900 our orchards, as a whole, bore the very best quality of fruit that could be expected from self-caretaking trees. The older an apple-growing district gets, the more insect enemies and fungous diseases the growers have to fight to protect their trees. In the year 1900 I knew of only one sprayed orchard in this locality. All other orchards required very careful sorting in order to put up a good quality of fruit. In 1901 and 1902 the fungous diseases in unsprayed orchards were still worse, and 1903 was the worst year ever seen. Orchards not sprayed did not show 5% of clean fruit, while the well-sprayed orchards showed 95% clean. By this time we had a few more growers spraying their orchards. The years 1904 and 1905 were repetitions of 1903. In 1906 we had a few more spraying outfits in use, and the year was not nearly so favorable for fungous growth as the years mentioned before, owing to our having very little moist weather during the fore part of the apple season. Therefore, the unsprayed orchards were the best they had been since 1900. However, there was certainly a marked difference in favor of the sprayed orchards, and we, this spring, have several more spraying outfits at work.

Apple dealers who have had experience with fungous apples, know that they are dangerous to handle, especially if picked and packed in barrels early in the season during warm weather, before the apple is matured. I have seen fungous Greenings and Snow apples show rot in 3 days' time when picked and packed early in Sept. There are 2 reasons for this early picking. The buyer, after buying his apples by the lump, begins picking long before the apples are matured so as to catch the early markets. He is also very uneasy in anticipating high winds, which would put a large quantity of the fruit to the ground. The quantity of two-thirds grown apples shipped from this district early last season to catch the early European markets was shameful. Our orchards in this county, taken care of by orchardists, have a season too short instead of too long. Careful spraying and cultivation has lengthened our season considerably, compared with our neglected orchards that are infested with fungous diseases and insect enemies. These self-caring orchards are the cause of Mr. McNeill's ideas, and it should not be said it is unfortunate that so many Spys, Baldwins, Russets and other winter varieties of trees were planted in this section. But it is unfortunate that the growers, as a whole, did not take better care of their orchards, and with our cooperative association we will certainly make a big improvement in our orchards in this county in the near future.

My experience is that Greenings, Kings, and Snows should not, in well-cared-for orchards, be picked before Oct. 1 to 10; Russets and Baldwins, Oct. 15 to 20; Spys, Oct. 20 to Nov. 1, and in this locality it would be unwise to leave picking later than Nov. 1, as last season the freeze of Oct. 23 hurt our crop to quite an extent I will admit that all fruit from the diseased orchards, which have been in the majority for the past few years, should have gone to the evaporator, canning factories and cider mills instead of being packed into barrels and shipped to outside markets, giving us a name for being able to produce only an inferior quality of fruit.

I would advise, in other districts in Ont., where apple growing is younger, and only had the fungous diseases for a season or two, that the growers get busy and spray their orchards and not lose their reputation as a fruit-growing district, as, when the fungous disease gets with you, it is there to stay, and with the right weather conditions, will ruin your fruit crop. Spraying with the right solution at the right time, with proper care, will insure your crop free from all fungous diseases. The spending of a little money, and the unpleasant work of spraying, is generally accountable for an uncared orchard.

In 1900 and 1902 I bought apples in this county; also bought apples in another district of Ontario, with the result that the apples shipped from here sold on an average at $1 a bbl. more than the apples bought in the other district, owing to size and color of fruit. These apples sold from April 1 to July 1 the following years.

I have shipped apples from this county nearly every year since 1896 with a handsome profit each year. Mr. C. E. Stewart, Cottage Grove, Ore., who was employed by the Govt. to give the fruit growers exhibitions in box packing, visited this locality the last on his list last fall, and he stated when he looked in some of our sprayed orchards, that he had never seen, in all his travels, any better fruit; and he seemed puzzled, when looking at some unsprayed orchards, to find the ground covered with apples, that these careless growers did not follow such an object lesson.

In 1904, Baldwins grown in Mr. Robt. Waddle's orchard near here, were worthy of comment throughout the Dominion, as well as the Spys grown in Mr. Charles Challend's orchard in 1905. In 1906 the Norfolk Fruit Growers' Association made 16 entries in commercial packages at the Flower, Fruit and Honey Show, Toronto, carrying away 12 prizes. Other exhibitors of this county also were favored with many prizes. Well-cared-for orchards are realizing a good dividend on an investment of $1,000 an acre in this county.

The lump apple buying has, I consider, damaged the fruit growers of Ont. to a great extent, as, in this locality, uncared, diseased orchards have been bought early with the result that in such orchards the fruit began to drop in Sept., and the buyers began to pick and pack this fruit in bbls., all of which should have gone to our canning factory instead of being shipped and branded as prime Canadian apples.

A SUMMARY

In Ontario I should strongly advise growers to form assns. and to prune, spray, cultivate and fertilize their orchards and ship only good fruit. We have never produced too many good apples any year, but if inferior fruit is shipped early in the season, it blocks the way and forces down the prices of our good fruit. When the consumer, early in the season, gets a few poor lots of apples, he is discouraged and will not buy apples, but buys oranges and bananas instead.

In Norfolk county the climate is exceptionally favorable for the growing of late fall and winter apples where orchardists have given their orchards proper care, which, in these years, is necessary to produce a good quality of fruit. I should recommend the planting of McIntosh Red, Baldwins, Spys, Russets and Greenings. This list should be large enough to choose from for the commercial orchard. Many of us careful growers had Snow apples March 1 this year in nice condition, and our Kings, Spys, Baldwins and Russets are keeping nicely.

Let it be known it was not the climate nor the varieties of trees planted, but it was the careless grower and lump apple buyers that have been tearing down the reputation won in former years by this county as a producer of excellent quality of winter apples. Our Norfolk Fruit Growers' Assn. has a membership now of 43, who have pledged themselves to prune, also spray and make Norfolk apples a high standard of quality, and who are anxious to get into communication with buyers who are looking for a desirable lot of apples for shipment next fall. — JAMES E. JOHNSON, Norfolk County.

A Power Sprayer Device

Camby Wismer, Jordan, Ont.

That spraying by power is productive of best results and is by far the most economical method of applying spray mixtures, needs no confirmation at this age of advancement in fruit growing. I am an advocate of doing it by what is termed "traction power," because that gives one an ever present supply in abundance without a cent of cost other than the purchase of the right kind of machine.

On our farm there are a number of hillsides and slopes, upon some of which we grow grapes and other fruits. We cannot spray these successfully with the ordinary "traction power" sprayer that takes its power from the left hind wheel on account of the driver sometimes being on the upper side and constantly slipping; accordingly, I decided to apply the principle of a counter shaft with ratchets on either end similar to those of a mower, and arranged to take the power from both hind wheels, which would overcome the difficulty, and also do away with the necessity of midclaws, because of the resistance of the pump being equally divided between the two wheels. It also would make the machine run more smoothly over hard roads. The principle was applied in the following manner:

I already had an old dump cart on which were 56 inch wheels. These I used for the rear, and put a rim sprocket on each of them. I also had a pair of good wheels out of a threshing machine truck; these I used for fronts. I made a frame of two by eight inch stuff set on edge and, in this, I hung a half-round tank with the flat side up. I reserved enough room below this to permit of the counter shaft being boxed in the lower edges of the frame. I then took the deferential gearing off a Brantford No. 3 mower and reinforced its castings and got a pair of new ones made, and machine fitted on a one and a quarter inch bar of steel. I bought an unmounted Wallace power sprayer, took the sprocket off the crank shaft and used it for a pattern to get another one for the counter shaft. When I got this all ready and set up, it was a success. The two rear wheels with a driving chain from each one worked to my entire satisfaction.

Scale is Spreading

Ed. THE CANADIAN HORTICULTURIST: The time has come when every person in the fruit business must spray and spray properly. There is lots of scale in the township of North Grimsby. I know of places where scale was very bad last year, and where spraying was done properly, it is hard to find a live scale now On the other hand, I know of a place that was only half sprayed, and now the orchard is about ruined.

If fruit growers who find scale in their orchards would spray regularly and properly, they can keep the pest in check. If spraying is not done, the township of North Grimsby will be as bad as that of old Niagara. The majority of our growers have awakened to this fact, and spraying is now being carried on extensively.—W. H. Book, San Jose Scale Inspector for North Grimsby, Ont.

Have you a copy of the Steele, Briggs Seed Co.'s handsome catalog for the spring of 1907?

Mr. W. T. Macoun, Canada's Leading Horticulturist

RECOGNITION of the services and ability of Mr. W. T. Macoun, Horticulturist, Central Experimental Farm, Ottawa, recently has been made in a material way, by his having received within the past year at least two offers inviting him to sever his connection with the department at Ottawa, and to assume similar duties elsewhere. Fortunately for the Central Experimental Farm and for the practical horticulturists of Canada, Mr. Macoun has declined these tempting offers. As his work and achievements are of great value to all branches of horticultural interest, THE CANADIAN HORTICULTURIST thinks it only proper and of general interest to publish a few words in further recognition of Mr. Macoun's services to the country. As a horticultural investigator, Mr. Macoun stands *facile princeps* in Canada to-day. Mr. Macoun's reputation has not been gained through cheap notoriety, by originating curious things in the world of fruit and flowers, but by successfully solving many of the problems of the practical commercial fruit and vegetable grower. He is recognized by all who know him as a persistent, never-tiring, painstaking worker, a close observer, and one who makes his deductions after much thought and with great caution. He has become an expert or specialist in several phases of what we might term "northern horticulture," but more particularly on the apple and potato and their culture.

He has paid special attention to the development of a hardy winter apple of fine appearance and good dessert quality, believing that such an apple would be of inestimable value to the colder parts of Canada.

Many instructive and valuable experiments have been carried on with a large number of old and new varieties, to find how far these different sorts can be grown with profit in the different climates of the Dominion and the localities where they can be produced to the greatest advantage. Over 600 named varieties of apples and crabapples have been under test. Experiments have been conducted in shipping apples to Great Britain, in storing apples, in recording the individuality of apple trees, and in determining various other important features in the apple tree and its fruit. In cultural experiments with apples, Mr. Macoun has conducted investigations in fall vs. spring planting, in root killing of apple trees, in cover crops, in mulching the soil with green clover, in top-grafting, in the close planting of apple trees, in preventing injury from sun scald and by mice. Excellent experiments have been conducted to determine the value of whitewash as a means of retarding bud growth in spring and for destroying oyster-shell bark-louse and other insects. Valuable experiments also have been carried on with other tree fruits. With grapes, Mr. Macoun has tested the various old and new systems of training, the best means of protecting the vines during the winter and spring, and he has originated many new seedlings by cross fertilization and selection. In small fruits, much excellent work has been accomplished in the testing of varieties and in trying the best methods of culture, pruning, protection for winter, and in originating new varieties.

The experiments carried on by Mr. Macoun in the cultivation of vegetables to find out what varieties are best suited to the various climates of the country also have proved of much value. The results of these tests and lists of varieties suitable for cultivation on the farm and on the market garden have been published from time to time. For 17 years, Mr. Macoun has been carrying on experimental work with potatoes and he published an exhaustive bulletin on the subject in 1905. It might not be going too far to say that Mr. Macoun is the best posted man on potato culture in this country—certainly we know of no one here who has, to such an extent, studied and mastered the growing of this indispensable vegetable. Innumerable varieties, both standard and new, have been tested. Work has been conducted to determine to what extent varieties change or can be improved by selection. Others have been worked out in treating various potato diseases, in learning the resistance of the various varieties to blight and rot, in recording how far varieties are affected by change of seed In potato cultural methods, work has been carried on to gain information in regard to the best time to plant, the best fertilizers, the kind of sets to plant, best depth to plant and other points of value.

Valuable conclusions have also been arrived at by Mr. Macoun in various lines of work connected with the growing of ornamental plants,

Mr. W. T. Macoun

such as herbaceous perennials, woody climbers, flowering shrubs, deciduous and evergreen trees, and so on. Work in forestry has not been neglected as Mr. Macoun has under his care some 21 acres of forest belts.

Mr. Macoun's writings show that he keeps himself in close touch with horticultural experts in the United States and elsewhere, and that he uses the information thus obtained for the furtherance of fruit growing in Canada, so far as it is applicable or adaptable to our conditions, and this leads us to say that Mr. Macoun is one who firmly believes in the press as an excellent channel through which to disseminate knowledge. In this matter, as also in that of answering the questions of his fruit growing correspondents, Mr. Macoun is doing a most important and valuable work —one which is highly appreciated throughout the length and breadth of our land.

Besides the particular work in which Mr. Macoun is engaged at the Central Experimental Farm in Ottawa, he lends the value of his experience to horticultural matters of various kinds in all parts of Canada. He has taken a very active part in the administration of the Ottawa Horticultural Society, probably the most successful horticultural society in Canada. In both the Lady Minto and the Lady Grey garden competitions in Ottawa, Mr. Macoun acted in the capacity of judge by special request. He is a member of the board of control of the fruit experiment stations of Ontario, and of the new fruits committee of the Ontario Fruit Growers' Association, and of the executive committee of the American Pomological Society.

Natural Species

H. H. Groff, Simcoe, Ont.

The popular theory that species breed true has no longer a place in advanced thought. There is nothing rigid in nature, all forms are in a state of flux or evolution, more or less apparent.

Species are sections of natural orders. If by breeding between species the earlier influence is made apparent by atavism, why should we expect the species, a later development, to be inflexible?

The point of difference seems to be between what are called elementary species and taxonomic species. This would class the former and more flexible sub-section as varieties during the long natural process, producing more complete isolation with increased powers of individual resistance to crossing as well as more certain forces in reproduction when crossing is attempted. When this process evolves the most complete isolation, the form is entitled to rank in the latter class.

The brief span of individual human investigation is far too short to secure the needed comprehensive knowledge and definite facts desired. In nature there is no absolute uniformity of type, and all types, no matter of what apparent fixity, are constantly, though imperceptibly, undergoing change These constitute the elementary species.

When the evolutionary process is complete and the form stands in the last stage of its isolation as a distinct and individual concentration of vital force, it is entitled to classification as a taxonomic species. In this stage it will hold its place only so long as it may withstand the encroachments of another and more virile member of some other natural order. This is the course of nature in plant, animal and human life.

The work of the scientific plant breeder is now sufficiently progressive to supply the needed illustrations for practical use and educative purposes. The modern investigator does not expect his product to possess a rigidity not supplied by ages of natural influence, and it is well, as such inflexibility would be an insuperable barrier to our progress, on lines of æsthetic, useful and commercial value.

More and Better Apples.—It is estimated that apple orchards sprayed with Swift's Arsenate of Lead will yield a 25 to 50% larger crop and produce apples with a much higher market value per barrel. Potato crops have been found to be doubled through the protection afforded by Swift's Arsenate of Lead against the potato bug. No lime is needed, but it can be successfully mixed with Bordeaux mixture for a combined insecticide and fungicide. Any one interested in this subject may receive a very interesting and valuable book by sending a postal card request to the Merrimac Chemical Co., Broad St., Boston, Mass.

A cooperative fruit shipping association has been organized at Georgetown, Ont. At a recent meeting of Georgetown fruit growers, it was decided to form a joint stock company with a capital of $1,000. The use of a large freight shed on the G.T.R. track has been secured where the fruit will be packed. The name of the association is "The Georgetown Fruit Growers, Limited," and the following officers were elected: Pres., Wm. Bowman; vice-pres., W. A. Wilson; sec. and manager, Frank J. Barber; treas., Wm. Bradley; directors, Jas. Harrison, Wm. Thompson, and H. A. Reed.

NOTES FROM THE PROVINCES

By our Regular Correspondents and Others

British Columbia

C. P. Metcalf, Hammond

Spring has come again, and with it spring work. Grafting, fertilizing, spraying, cultivating, and other details of orcharding, so likely to be neglected in the rush to get the crops in, should not be forgotten. Too often this is the one season of the year when the orchard suffers from lack of attention.

Spraying is being more extensively carried on this spring than has heretofore been the case, due, no doubt, to the stricter enforcement of the provincial laws respecting the spraying and pruning of orchards. It is to be hoped that the year will be a favorable one, so that fruit growers may be encouraged to do it more thoroughly, not merely to comply with the law, but for the benefits to be derived.

Canes and bushes have come through the winter fairly well. Trees, particularly apples and cherries, suffered some from splitting of the bark of the trunks caused by the thawing and freezing of the sap content.

The B.C. Fruit Growers' Association has been holding a series of meetings throughout the interior and lower mainland, with a view to encourage local associations and individual growers to cooperate in the maintenance of prices, and in a more even distribution of the output in the markets of the west.

The local association at Revelstoke resolved to endorse the resolution of the Kamloops Fruit Growers' Association asking the Provincial Government to establish a fumigation station at Revelstoke for the fumigation of all imported trees for distribution in the interior. At present the only one is at Vancouver, an unfortunate arrangement, as nearly all the nursery stock coming from the east and south-east has to be taken through Revelstoke to Vancouver, and then back again to its destination, frequently involving a delay of a fortnight. All the interior fruit growers are agreed that such a station should be established at some interior point.

The Labor Question in B.C.

H. L. Gordon, Vernon

The severe winter in British Columbia has been followed by a burst of beautiful spring weather, causing the fruit farmer to look around for necessary labor. The farmer, who must limit the amount of wages he offers, is at a disadvantage in the search for labor in competition with lumbermen and those able to make tempting offers and recoup themselves by adding to the prices of their commodities.

There is a serious lack of immigrant laborers at present. It is said that many who start from Europe with British Columbia as their destination, are captured *en route* chiefly at Winnipeg. However this may be, the fruit farmers whose trees are as yet unproductive, and their name is legion, are unable to find the labor for their orchards, whilst the intention of the provincial government to inspect orchards rigidly for the presence of pests, threatens to place the farmer between the devil and the deep sea; he cannot keep his orchard as it should be without hired labor. It is to the provincial government that the farmer looks for the solution of the labor problem. There has been much talk and many newspaper interviews with officials, but no practical result.

The farmer has until recently depended largely upon the Chinaman; but there is a concensus of opinion among those who consider the question dispassionately, that the Oriental laborer cannot meet the requirements of the situation, and the agitation of a year ago in favor of the removal of the import tax upon Chinamen has subsided. The permanent good of the country demands white labor, but until the fruit farmer finds work for his laborer throughout the winter as well as in the other seasons, or until industrial expansion in other directions provides winter opportunities for the laborer, it is hard to see how the farmer's difficulty and the solid welfare of the province are to be met simultaneously. A suggestion has been made that 5 acre lots might be sold or rented moderately in the fruit districts to men who would act as farm laborers in the season; but it has not taken root, although it is held that a desirable class of immigrant would be attracted.

After all, British Columbia is but going through a difficulty that is successfully, if gradually, met in older districts less favorably situated, and with much less important financial interests behind them; but the farmer is growing somewhat aweary of the prolonged talk on the subject and the lack of action in high places. The prospects of the fruit industry in British Columbia are probably unrivalled. It falls to those in authority to see to it that these prospects are not blighted by lack of suitable labor.

Nova Scotia

G. H. Vroom, Dominion Fruit Inspector

Another Nova Scotia winter is a thing of the past, for which we are truly grateful. The apple crop has nearly all been marketed at only medium prices. The total export from Nova Scotia for the year 1906-7 will amount to something near 325,000 barrels.

I have been looking quite carefully over the orchards in several localities in the Annapolis Valley during the last week or two, and I find the trees well stocked with fruit buds, which ensures a big bloom, without which we cannot get fruit. I find very little winter killing, and the trees look well. The buds have not yet begun to swell as the weather has been cold and backward. The fact that the buds are kept back by the cold weather is a good thing for the fruit, as the bloom will escape the spring frosts. Caterpillars will very likely be troublesome this season, as the nests are plentiful on the apple trees. Present indications argue in favor of a good apple crop in Nova Scotia this present year.

Prince Edward Island

Rev. Father Burke, Alberton

The spring is late in Prince Edward Island. It has seldom been later; but, no doubt, the Giver of all Good will not, on this account withhold, any more than other years, the miracle of the multiplication of seeds, by which the world lives.

In badly broken orchards our experience teaches us that usually it is useless to go to much trouble with repairs. Every broken limb of any size is better off, if not needed for the moment, for purposes of respiration, until new sprouts come, etc. All this bolting and wiring ultimately goes to pieces, in most cases. Set out some good new trees, is our advice. And do not be discouraged; you are learning all the time and this is all the pleasure of life.

What will you put out this spring? This correspondence with Chief McNeill will answer as well as anything else:

"Rev. Father Burke: It is difficult, indeed, to say what is the best variety, in fact there is no best variety. A variety is a thing not only of climate and soil, but of individuals, and consequently we need never hope to get at absolutely the best variety. Nevertheless, there is a working list of six that it is undoubtedly expedient to recommend. You give your own personal list as: 'Duchess, Alexander or Wolf River, Fameuse or McIntosh Red, Gravenstein (top-grafted), Spy (top-grafted), Stark.'

"This is a most excellent list if you happen to be a Duchess man. Like you, I have the conceit to think that I am a Duchess man, and am putting in 500 trees more of them next spring. Your problem with the Duchess is comparatively easy because, as grown in Prince Edward Island, they may with a reasonable hope of success be packed in barrels, and will carry to an extent that we in the southern part of Ontario could not think of counting upon. I expect to have to harvest mine all in boxes and with the assistance of cold storage. Indeed, I should never think for a moment of planting the Duchess if I did not intend to box every Duchess that I sold, and ship it with the help of cold storage from the orchard to the market.

"Of your second choice, Alexander or Wolf River, I think I would prefer the Wolf River, all things considered, but you would make no mistake in the Alexander. It is a paying apple. So, also, in your third choice, I would prefer the McIntosh Red to the Fameuse. It is hardier, I think, of better quality, but certainly either of them is good enough in quality, but it is a somewhat better keeper and shipper.

"I must confess that I have always had great hopes of the Gravenstein in Prince Edward Island. Top-grafted on hardy stock such as the Tolman Sweet, McMahon White, Hibernal or Gideon or Haas, it would be hardy almost anywhere that other apples grow, and could be harvested just with the last of the Nova Scotian fruit and for some weeks after. The better keeping quality of the Prince Edward Island Gravensteins would, I believe, so soon give them a place in the market that they would occupy practically the same position as the Georgian Bay Spys do in Ontario fruit, and would call for a top price. I must confess that I never thought highly of the Spy for Prince Edward Island; and nothing but the success of Senator Ferguson keeps me from severely criticizing the Ben Davis and the Stark.—A. McNeill, Chief, Fruit Division, Ottawa."

Implements that Save Labor

The scarcity of good farm help is a serious problem that confronts fruit growers and gardeners. The result is that many of them are compelled to allow a large part of their land to lie idle and allow it to run to grass and weeds. The fruit grower or gardener who depends upon Iron Age garden tools, has the best help in the world. These tools do the work easier, quicker, and better than it can be done by any other methods. Some of them combine several tools in one implement.

The illustration shows the No. 60 Iron Age riding cultivator. It is a great time and labor saver. It is quickly adjusted to cultivate any crop in rows from 28 to 48 inches in width. It is successfully operated on both level and hilly land, and on all kinds of soil. It is easy to guide and easy to turn in the smallest space. A little booklet tells about this and many other implements. Write for it to the Bateman Manfg. Co., Box 516, Grenloch, N.J. Mention The Canadian Horticulturist

British Columbia apple growers should make a strenuous effort to command the apple market of Australasia. Reports from the Canadian Commercial Agent at Sydney, N.S.W., indicate that a larger trade in this product should be carried on between Canada, particularly B.C., and that country.

Orchard Management

At the last P.E.I. F.G.A. convention an address on "Orchard Management" was delivered by Mr. W. T. Macoun, C.E.F., Ottawa. He spoke especially on that part of the work relating to varieties, cultivatiou, cover crops, fertilizers and pruning. In referring to varieties, he mentioned those which appeared to him particularly suitable for the Annapolis and Cornwallis valleys as judged from observations recently made by him on a trip through the Annapolis valley. He said that in the future the Blenheim was going to be to the valley what the Gravenstein had been in the past, as this sort did particularly well, and was sought for in Great Britain. Other suitable varieties were Ribston, King, Baldwin, Wagener, and Stark. Others which did well, though not quite so satisfactory, are Greening, Northern Spy, Golden Russet, Roxbury Russet or Nonpariel. The Ben Davis does well, but is not recommended. He thought orchards were cultivated more thoroughly in N.S. than in most places in Canada, but cautioned the fruit growers against cultivating too late, as he believed that the so-called "collar rot" of the Gravenstein and other varieties was caused by the trees growing too late in the autumn, and that the bark at the ground was burst when severe frost came, the wood not being thoroughly ripened at this point. He recommended stopping cultivation earlier and seeding down with cover crops to check growth.

Referring to fertilizers, he said that young trees do not require much fertilizer, good cultivation early in the season being more important. Expensive fertilizers may be applied to bearing trees. Cover crops were recommended for young and old orchards to furnish humus and nitrogen, and to bring the soil into a better mechanical condition, thus lessening the leaching of plant food and favoring a thorough aeration of the soil, which Mr. Macoun contended was as important a factor in cultivation as the retention of moisture. In pruning bearing or old trees they should be treated back at the top and sides from the outside, rather than pruning off the large lower limbs and cutting out the centre of the tree. This forces the tree to more upward growth, making picking harder, while heading in encouraged the development of bearing wood lower down. Considerable discussion followed this paper, especially on the subject of "collar rot," some favoring Mr. Macoun's views and some not sure that this late growth was the cause.

Toronto Hort'l Society

The Toronto Horticultural Society held its regular meeting on April 2. Arrangements were made for the distribution of seeds to school children and other routine business transacted. Mr. Wm. Hunt, of the O.A.C., Guelph, was the lecturer of the evening, his subject being "The Mixed Flower Border." His address was, as usual, full of good, sound, practical information. The speaker stated that he had selected "The Mixed Flower Border" as his subject for several reasons one being that very few flower lovers in towns or cities had sufficient ground to allow of their having a border of what are usually considered as strictly border perennials alone. For this reason, and the fact that in having a more varied selection of plants such as spring and summer flowering bulbs and plants as well as a few annuals, or even greenhouse and house and window plants mixed in judiciously, a more continuous and lengthened period of flowering results could be obtained.

Numerous questions were asked the speaker during and after the address, the audience evidently being deeply interested in the subject. A hearty vote of thanks was tendered the speaker at the close of his remarks. Extracts from Mr. Hunt's address will be published in another issue.

Notes from Societies

The Thornbury Horticultural Society will miss the well-known and genial face of its late secretary, A. W. Walker, who has gone to join the great majority. He settled in that locality some 40 years ago.

The St. Catharines Horticultural Society is booming. Indications point to a banner year. Three shows will be held, as last year, June, July and September. The September show will surpass in every way the one of last season.

At a meeting of the Hamilton Horticultural Society, held April 11, Prof. H. L. Hutt of the O.A.C., Guelph, gave an address on "How to Beautify Homes." The lecture was illustrated by means of lantern slide views, and was much enjoyed.

A most enjoyable meeting of the members and friends of the Grimsby Horticultural Society was held at the beautiful residence of Mr. Linus Woolverton, on April 12. The speaker of the evening was Mr. Wm. Hunt, of the O.A.C., Guelph, his subject being by request, "Our Grandmother's Garden." Much information of a practical and interesting nature was imparted to those present.

At a recent meeting of the Woodstock Horticultural Society, Mr. Wm. Hunt, of the O.A.C., Guelph, spoke on two subjects, "The Mixed Flower Border," and "Seasonable Topics." The speaker in his introductory remarks congratulated the citizens on the securing of a parks, shade tree and boulevard commissioner. The subjects of the evening were matters on which the speaker seemed quite at home. A number of questions were asked Mr. Hunt, who replied in his usual ready and well-informed manner. In the afternoon, Mr. Hunt addressed about 200 scholars at the Central School, among whom the Woodstock society is distributing about 300 packets of aster seeds.

Reliable Plants for Spring Planting

ROSES

SNOW QUEEN (Frau Karl Druschki or White American Beauty). The new German Rose which has made such a sensation. Flowers exceptionally large and snow white. Strong grower and free bloomer.

BABY RAMBLER. This new Rose is of dwarf habit and continually blooms from Spring until frost. At the approach of cold weather the plants can be potted and brought in the house, where they will bloom throughout the winter.

Also Baron Prevost, Crimson Rambler, Dorothy Perkins, Madame Plantier, Marshall P. Wilder, Margaret Dickson, Paul Neyron, Ulrich Brunner, White Ramblers, Yellow Ramblers, and a general assortment of extra hardy field-grown Roses which cannot fail to give satisfaction.

WRITE FOR LISTS AND PRICES

EVERGREENS

250,000 NORWAY SPRUCE

(Picea excelsa)

in all sizes from 9 inches to 3 feet

All transplanted, healthy and bushy stock, just in the condition for forming thick Evergreen hedges and shelters.

Also Thuja Nervæneana, Thuja Pyramidalis, Thuja Semperauresceus (a most beautiful bronze and golden coloured dwarf growing arbor-vitæ), Austrian, Scotch and White Pines, all sizes. Retinosporæ in variety, and the leading varieties of Thuyopsis, Abies, Taxus, etc.

WRITE FOR LISTS AND PARTICULARS

Stock packed carefully and shipped by Freight or Express. Shipments made daily by G.T.R., C.P.R., M.C.R., T. H. & B. Ry. and Canadian and Dominion Express

ESTABLISHED ¼ CENTURY

E. D. SMITH

NURSERIES 750 ACRES

HELDERLEIGH NURSERIES

WINONA, ONTARIO

Mention The Canadian Horticulturist when writing.

Items of Interest

At a meeting of the Ottawa branch of the Ontario Vegetable Growers' Association, held recently, the question of using baskets instead of boxes for tomatoes was discussed. No definite action was taken.

Lovers of flowers should read the offer of THE CANADIAN HORTICULTURIST to give 10 gladiolus corms free to all readers who will send in one new subscription for the paper. The offer is good only until May 15. Take advantage of it now.

Several severe freezes have destroyed the peach crop in this vicinity, and have damaged the apples and plums, and the cold, dull weather has been most unfavorable for the fertilization of all the early blooming fruits.—B. S. Pickett, Champaign, Ill.

All the leading varieties of strawberries, raspberries and potatoes are grown and sold by John Downham, Strathroy, Ont. Send for his catalog.

All nursery stock should be fumigated with the roots covered with earth so as to protect the roots against danger from the gas. Some nurserymen are a trifle careless and get in too much of a hurry and the grower suffers. The latter loses not only cash but time and labor. —W. A. Hunsberry, Jordan Station, Ont.

Do you want to try a new strawberry, and one that has proved of superior merit by actual test? If so, send one new subscription to THE CANADIAN HORTICULTURIST, and receive 20 plants free. Read the offer in our advertising columns.

From Far-off China.—The following letter was directed to Mr. M. J. Henry, of Vancouver, B.C., who sent it to us: "I am directed by His Honor the Commissioner to write and ask you if there is a good fruit journal published in Canada. If there is, I am to ask you to be kind enough to order it sent here for one year, addressed to me. J. Gibbons, Port Edward, Wei Hai Wei, China."

Worth Ten Ttmes Its Cost.—Mr. W. H. Gibson and I have repeatedly compared the cost of our spraying outfit and the results, and we are practically certain that a Wallace Sprayer would pay us supposing it cost $2,000 instead of $210 Our orchards as yet have not reached maturity, the majority of trees being about 10 years old. We consider, therefore, that the machine will pay us still better in the future. We are seriously considering buying another, so that each will have a machine. I am planting out 1,000 trees on another farm that I have, and expect to have to get a sprayer for there in a few years. Needless to say it will be a Wallace.—H. C. Bowen, Newcastle, Ont.

Practical Books For All.—Any books on horticulture may be obtained through us at a reasonable price. Every fruit grower, gardener and amateur florist should write for our brief catalog of 16 pages, which will be mailed free of charge to all who are interested. The following are a few of the books we handle and their prices: "Fruit Harvesting, Storing, Marketing," F. A. Waugh, $1; "Practical Fruit Grower," Maynard, 50 cts.; "Vegetable Gardening," S. B. Green, $1; "Garden Making," L. H. Bailey, $1; "Gardening for Young and Old," Jos. Harris, $1; "Home Floriculture," E. E. Rexford, $1; "Practical Floriculture," Peter Henderson, $1.50. Write to THE HORTICULTURAL PUBLISHING CO., 506-7-8 Manning Chambers, Toronto.

One of the three most important elements of plant food in the soil is potash. In fruit trees, it produces fruitfulness rather than excessive wood growth. It has an influence on the flavor and it causes the fruit to color up better. Fruit growers and gardeners should use a certain amount of potash each year on their soils. Write for further information regarding it to the Dominion Agricultural Offices of the Potash Syndicate, 1102-1105 Temple Building, Toronto, Ont.

THE CANADIAN HORTICULTURIST for March is a beautiful number, a positive credit to this Dominion. Every orchardist and gardener should subscribe for this 50 cent magazine. It is equal to many dollar publications.—*Bowmanville Statesman.*

ASPARAGUS WANTED

If you will have any Asparagus to sell this Spring write to me at once with particulars. It will be more profitable to sell to me than to any one else. Let me hear from you.

E. C. KIDDER
ST. CATHARINES, ONTARIO

Mention The Canadian Horticulturist when writing.

Dominion Line
ROYAL MAIL STEAMSHIPS

MONTREAL TO LIVERPOOL

OTTAWA	May 4th
VANCOUVER	" 6th
DOMINION	" 11th
KENSINGTON	" 18th
SOUTHWARK	" 25th
CANADA	June 1st

Above steamers all carry passengers

MONTREAL TO BRISTOL
(Avonmouth Dock)

TURCOMAN	May 4th
ENGLISHMAN	" 18th
MANXMAN	" 25th

Favorite Steamers for all kinds of perishable cargo having fan ventilation, cold storage, and cool air chamber.

GEORGE W. TORRANCE,
Freight Agent . 28 Wellington St. E., TORONTO

M. A. OVEREND, J. W. WILKINSON . . . . . Travelling Freight Agents

DOMINION LINE—PORTLAND, Maine.

Mention The Canadian Horticulturist when writing.

BRITISH AMERICAN WAR

SPECIAL CORRESPONDENCE

Gasport, N.Y., April 15th, 1907

Both American and British Horticulturists have declared war against the San Jose scale, and in order to make effective the fight, they have placed an order with the leading manufacturers of spraying apparatus for ninety-nine of their gasoline power machines, hundreds of their new ball shut-offs, thousands of their nozzles and a great many more of their hand pumps than ever before.

These orders are a direct result of the good work which the "Friend" outfits have been doing in the past years. The Company report that they have made shipment of eighty of the ninety-nine 1907 machines sold this season and are filling orders promptly on other lines. Every mail brings orders from as far west as Oregon and as far east as Nova Scotia, and they have shipped many of their machines into Australia, Egypt, etc.

Every mail brings to the Company words of praise and commendation from the most prominent Fruit Growers in the world, regarding the machines and especially the spray nozzle which is constructed that it takes the place of the usual cluster of nozzles and the one is all that is necessary. They have carefully protected their own ideas and warn all people to be careful what they buy, as users as well as manufacturers of the infringed articles are liable.

In this issue is pictured one of their complete machines at work in one of Niagara County's orchards in the early spring. The "Friend" nozzles and shut-offs attract considerable attention, especially on a cold day when dripping, clogging nozzles and leaky shut-offs are the pest of the job.

If you want to get in touch with a concern devoted exclusively to the manufacture of spraying apparatus, who originate all of their own ideas, write your wants to the

"Friend" Manufacturing Company
GASPORT, N.Y.

Mention The Canadian Horticulturist when writing

A Power Sprayer Bonus

In the production of high-grade fruit, spraying has become the most important operation of the year, and while widely practised in certain sections, has not yet been given the attention that it requires in the apple sections. The advent of the power sprayer is of such recent date that the advantages it gives, especially in the spraying of apple orchards, is not yet appreciated.

For many years the Ontario Department of Agriculture has been advocating more and better spraying. Demonstrations in the use of hand and power outfits, and the preparation and application of the most effective mixtures, have been given throughout the province with satisfactory results. It is now felt that such information has been sufficiently diffused and another step forward is proposed.

The Ontario Fruit Growers' Association has within the past 3 years assisted in organizing a large number of fruit growing associations. One of the aims of these associations has been the cooperative spraying of orchards of their members, and it is now proposed to assist these and kindred organizations in such spraying work. With this aim in view, the Minister of Agriculture has asked the Legislature for a grant of $6,000 to be devoted to the assistance of fruit growers in the purchase and operation of power spraying outfits. Many associations already own and are operating such machines and these will receive the same aid as those organizing during 1907. The conditions under which the grants are available have been made as simple as possible with the hope that a decided stimulus will be given to the proper spraying of orchards during this and coming seasons. Following are the regulations covering the payment of the grants:

A grant of $50 will be made to any 5 or more farmers who unite to form a fruit growers' association for the purchase and operation of a power spraying outfit during the season of 1907. These associations need not be incorporated to qualify for this grant, though incorporation of cooperative associations should be obtained if the full benefits of cooperation are desired.

Cooperative fruit-growing associations owning and operating two or more power sprayers will be eligible to draw a grant for each machine operated.

The number of such associations receiving assistance during the present year shall not exceed 100.

At least 25 acres of fruit trees must be thoroughly sprayed during the proper season with each outfit.

A reasonable portion of such spraying must be done on the farms or orchards of each of the parties forming the association.

Such associations before receiving any portion of the grant shall satisfy an inspector of the department of agriculture that the above conditions have been complied with, and shall make such reports as shall satisfy the minister of agriculture.

Associations desirous of participating in this grant must apply to the department not later than the first day of May. Forms for making applications will be furnished on request.

High-class Perennials

Mr. E. Byfield, who contributes the article in this issue on "The Hardy Herbaceous Border," has for the past 10 years been an ardent enthusiast in the growing and testing of this class of plants He has succeeded in getting together a collection probably second only in Ontario to that of the provincial collection in Queen Victoria Park, at Niagara Falls. His aim has been to thoroughly test the adaptability of plants of this description to withstand the rigors of our Canadian winters, and to select the very choicest varieties of these plants that are procurable.

His efforts have been so successful and applications for plants from his grounds so numerous, that he has been practically compelled to place his spare stock on the market. A limited quantity of such plants as delphiniums, oriental poppies, pyrethrums, Canterbury bells, columbines, coreopsis, foxglove gaillardias, hollyhocks, German and other iris, perennial phlox, helianthus, rudbeckias and many other kinds of hardy plants, thoroughly tested on his grounds are offered, as far as they go, at reasonable rates. All communications sent to his address, Lock Box 96, Balmy Beach P.O., E. Toronto, will receive his prompt attention.

I have been in communication with The Deming Company, and have inspected their power outfit in actual field work with lime-sulphur, at Lockport, N.Y. I can safely say that this company have a splendid power outfit and one that should commend itself to practical growers, as well adapted for the purpose.—W. H. Bunting, St. Catharines, Ont.

The Largest Aster in the World

KATE LOCK

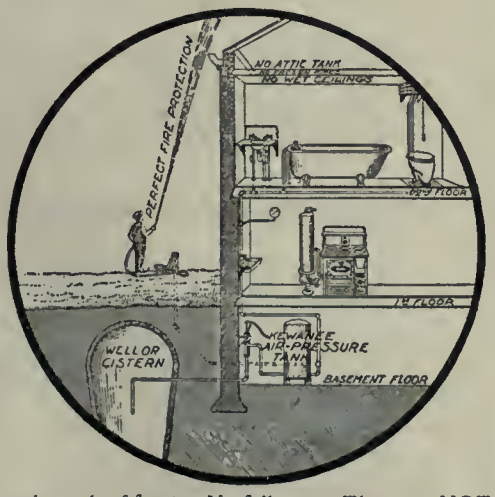
This aster has won highest awards at the leading exhibitions in Canada
Colors are in Separate Packages
White or Enchantress Pink Shade

Large Size Trade Packages, $1.00

J. H. LOCK, ORIGINATOR
41 Manchester Ave. TORONTO
Not guaranteed unless bearing my signature

KEWANEE WATER SYSTEMS

(AIR PRESSURE)

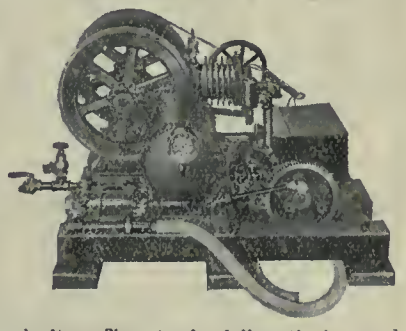


Are now in use in over 7,000 Private Homes, Stock-farms, Greenhouses, Ranches, Hospitals, Charity Homes, Apartment Houses, Factories, Government Buildings, etc. Built in sizes to suit the smallest family or the largest town. Throw streams 100 feet high. Everything out of sight and reach of frost. No failures. They are NOT expensive luxuries but ARE ECONOMICAL NECESSITIES, and give to the country or village resident the FULL SERVICE AND FIRE PROTECTION afforded in the cities. No elevated tank nuisances.

A $50.00 BONUS IS OFFERED TO PURCHASERS OF

WALLACE POWER SPRAYERS

BY THE ONTARIO GOVERNMENT



Send to the Department of Agriculture, Toronto, for full particulars, and "get busy" about it at once—the grants are limited.

Get the machine which has never proved a failure; which has never been returned on the guarantee thereof; which gives the best of satisfaction; which is GUARANTEED ABSOLUTELY; the kind for which as high as 32 repeat orders have been given by different orchard companies — THE WALLACE. It is now replacing other makes.

"The experience at the Experimental Farm, Ottawa, goes to show that it is possible, with careful spraying, to practically banish the Codling Moth from Canadian orchards. Last year it was impossible to find a specimen of the Codling Moth in the orchards of the Experimental Farm, and what was done there can be duplicated in any good orchard in Canada."—(See April issue *Canadian Horticulturist*, page vii.)

The above spraying was done with a Wallace "Duplex" Sprayer.

Investing in a Wallace Power Sprayer has returned as high as 14 times its cost in ONE SEASON on the Codling Moth alone; it beats the mining stocks to a finish. Try it. Do it NOW.

We have all sizes and styles in both Automatic and Gasoline outfits. The Automatics furnish ABUNDANCE OF POWER WITHOUT ONE CENT OF COST. Will spray anything, and no trees too large for them. Full information free for the asking—write for it.

Regarding any of these increasingly popular goods, enquire of **W. H. BRAND** CANADIAN REPRESENTATIVE AND SALESMAN Jordan Station, Ont.

Mention The Canadian Horticulturist when writing

POULTRY DEPT.

Conducted by S. Short, Ottawa

Intended improvements in the flocks should be made in May. This is the best season to take out the mongrels and replace them with pure-breds. In the first place, for the sake of economy it is cheaper to get one or more settings of eggs from a reliable source than to buy a pen of pure-bred birds. At this time of year pens of fowls are very hard to purchase, for breeders have disposed of all their surplus stock and do not care to break up their breeding pen unless a good cash offer is made. It should not be hard to get good hatches this month; that is, 10 chicks out of every setting of eggs.

It is better to purchase from a well-known breeder, as you are surer of better results. When a breeder has been years establishing his reputation, he is not going to throw it away by selling poor eggs for hatching, but on the other hand is going to sell eggs from good stock and from fowls mated together by an expert. He wants to sell eggs that will hatch strong chicks, that will not only be a pleasure and satisfaction to the owner, but will also be a credit, and add to the reputation of the breeds from which the eggs were obtained.

In past years, poultry raisers have borne rather doubtful reputations more or less deserved. Nowadays, the fanciers are men of different character, more intelligent and with better plants and facilities. No one but the experienced poultry raiser knows what possibilities there are in skilful breeding, especially to produce a winner in the popular breeds. Owing to the prevailing high prices of poultry and eggs, brainy men of good repute have been attracted to the field of thoroughbred poultry raising, and no one need refrain from investing in eggs from high-class stock through fear of being duped.

As a rule, eggs hatch an equal number of both sexes. It will be necessary, therefore, to hatch twice the number of chicks as females required for the laying pens next winter.

Fruit growing and poultry keeping should go together. With little additional labor, 2 crops can be raised from the same land, one of fruit, and another of fowls There is no better place for young chicks than in the orchard or berry patch. The following facts, though, have to be considered: Young and old fowl will pick at strawberries as soon as they begin to color. They will eat green grapes and green gooseberries if they get the opportunity. They will eat ripe raspberries and red currants. They will not eat black currants until the currants are so ripe that they fall from the bushes. They will eat windfalls from the fruit trees, also all moths and bugs that abound in the orchard. The following plan is followed by the writer without the slightest inconvenience. The poultry runs are planted with black currant bushes and apple trees. About the middle of August, when the currants and early apples are ripe, the fowls are removed to the raspberry and red currant plantations, the crop being over and the patch being enclosed with poultry netting and provided with temporary roosting quarters.

Keeping Hens for Profit

Alfred Andrews, Burlington, Ont.

In the April number of THE CANADIAN HORTICULTURIST I contributed a brief article on "Keeping Hens for Profit." From what was said, one might ask: Why do I remain in the business? My answer is that I want to be sure of having first quality of eggs for our own use, without the torment of looking after a supply outside, and often utterly failing in our efforts. Then, a number of friends who cannot keep fowls get their supply from us. They volunteer the statement that they "get no stock such as we supply them."

Eggs may be fresh and yet not of good quality otherwise. The quality and particularly a rich, agreeable flavor, cannot be assured without carefully providing for it. This depends on clean, pure, rich food, fed at proper times and in proper quantity; on clean water, fresh at least every morning and in good supply; and on clean, wholesome apartments.

Our dropping boards are scraped clean every morning and then sprinkled with dry, clean sand, making it easy to keep the hens from carrying into their nests any filth to soil the eggs. This could be washed off, but the beautiful bloom on a first-class egg should never be washed off. At least once a week all the litter on the floors must be removed.

Next in importance, is to see that the eggs are gathered frequently, especially when the fowls are broody. When gathered, they should not be allowed to stand in a warm, close, or damp room, before they are marketed The runs should never contain pools of filthy water, or other decaying matter.

IF YOU HAVE APPLES
OR POULTRY TO CONSIGN

we can handle them for you to advantage. If apples are in car lots, write us and we can sell them for you f.o.b. your station

THE DAWSON COMMISSION CO. Limited
Cor. West Market and Colborne St.
TORONTO ——— ONTARIO

FLORAL WORK A SPECIALTY

High Grade Seeds

Graham's Royal Exhibition Asters
Graham's Royal Exhibition Dwarf Nasturtiums
Graham's Royal Exhibition Pansies
Graham's Royal Exhibition Sweet Peas

Anyone interested in real Exhibition strains of above should grow them. One large packet of each 30c. postpaid.
Illustrated Catalogue on application.

GRAHAM BROTHERS
SEEDSMEN AND FLORISTS
53 and 55 SPARKS ST. OTTAWA
Mention The Canadian Horticulturist when writing

Feed Your Land
WITH GOOD MANURE AND GET
GOOD RETURNS

MARCHMENT'S
SURE GROWTH COMPOST
——— IS THE BEST ———

Supplied to the Largest Nurserymen and Fruit Growers in Ontario

S. W. MARCHMENT
133 VICTORIA ST., TORONTO
Telephones Main 2841 Residence Park 951
Mention The Canadian Horticulturist when writing

I like the kind of exercise that must be taken to have best results. Caring for the fowls is a source of health, without being at all severe labor.

In many concerns the bye-products are considered of importance. So with us. The droppings from the fowls, mixed with dry sand and thrown into an enclosed pile, makes the finest fertilizer for the gardens and berry bushes.

These are some of the reasons why I keep fowls. When the business is fairly well understood and judiciously carried on, there are fair probabilities for a moderate return, if one is patient enough to wait. Beyond that, look out, or you'll be sorry.

Novelties in Vegetables

Ed. THE CANADIAN HORTICULTURIST: I read with interest the article from Mr. J. W. Rush, of Humber Bay, Ont., in the March issue of THE CANADIAN HORTICULTURIST. While I agree with the greater part of it, there are one or two sentences to which I desire to take objection, viz., "Let new varieties and novelties alone. Leave them for the college students to try; we have no time for such work." If we had followed that rule in the past, what varieties of vegetables would we be growing to-day? The Marrowfat pea, Peachblow potato, or would it be Fluke's or Carter's, Demidur and Le Normand cauliflower, and so on? Seedsmen will give us new varieties just as soon as there is a demand for them, not before.

With regard to Mr. Rush's proposal to leave the testing to college students, I may say that if Ontario Agricultural College students were meant, the work probably would be both pleasant and profitable to them, and was attempted to some extent last year; but of what value would their experiments be to the commercial vegetable growers of the province? Can the name of one leading variety of vegetables be stated that was introduced to the public in that way?

It certainly would be foolish to plant untested varieties, but a little time spent in consulting the catalogs of leading seedsmen in Canada and elsewhere, and a small expenditure made every year in securing and testing new varieties, would be one of the most profitable investments a vegetable grower can make.—Thos. Delworth, Weston, Ont.

FOR SALE AND WANT ADVERTISEMENTS

Advertisements under this heading inserted at rate of one cent a word for each insertion, each figure, sign or single letter to count as one word, minimum cost, 25 cents, strictly cash in advance.

LANDSCAPE GARDENING—Plans drawn to scale for laying out and planting parks, cemeteries, public or private grounds. Work supervised. C. Ernest Woolverton, landscape architect, Grimsby.

GARDENER seeks situation in private place. Fifteen years' experience under glass and outside. Age thirty. Good references. Box B, CANADIAN HORTICULTURIST.

FOR SALE.—Niagara Power Sprayer, hundred gallons, with tower cart, five-row crop sprayer, tank pump, complete outfit. Used one season. F. Fairbrother, Oakville, Ont.

IF YOU ARE in need of nursery stock for planting this spring, write at once to the Smith & Reed Co., St. Catharines, for their catalog.

Registered in U.S. Post Office

USED IN CANADA 23 YEARS "SLUG SHOT" USED FROM OCEAN TO OCEAN

A light, composite, fine powder, easily distributed either by duster, bellows, or in water by spraying. Thoroughly reliable in killing Currant Worms, Potato Bugs, Cabbage Worms, Lice, Slugs, Sow Bugs, etc., and it is also strongly impregnated with fungicides. ☞ Put up in Popular Packages at Popular Prices. Sold by Seed Dealers and Merchants in Ontario, Quebec and Manitoba.

For Pamphlets worth having on Bugs and Blights, send to

BENJAMIN HAMMOND FISHKILL-ON-HUDSON, N.Y.

Mention the Canadian Horticulturist when writing

YE OLD FIRME OF HEINTZMAN & COMPANY ESTABLISHED FIFTY YEARS

CLEARING SALE OF SPECIAL PIANOS

SLIGHTLY USED AT A FEW CONCERTS

JUST EIGHT OF THEM, BUT EACH ONE A DEAD BARGAIN.
BE WISE AND CALL OR WRITE WITHOUT DELAY

R. S. WILLIAMS—Upright Cabinet Grand, ebonized case, panelled top door, 7 1-3 octaves, in first class condition, thoroughly overhauled; regular price, $450.00. Special..... **$215.00**

R. S. WILLIAMS—Upright Cabinet Grand, golden oak case, beautiful carved panels in top door, 7 1-3 octaves, practically like new, case revarnished, new hammers, etc.; fully guaranteed. Special, at..... **$225.00**

STANBURY & SON—Upright Cabinet Grand, beautiful walnut case, full length music rack, Boston fall, 7 1-3 octaves, 3 pedals; practically as good as new. Special, at..... **$245.00**

WORMWITH & CO.—Cabinet Grand, walnut case, full length music rack, Boston fall, 7 1-3 octaves, 3 pedals, sustaining bass, full metal plate, in elegant condition, fully guaranteed; used less than three months. Special, at..... **$250.00**

ENNIS & CO.—Full-size Cabinet Grand, 3 pedals, beautifully decorated, full length music rack, Boston fall, 7 1-3 octaves, full metal plate. This piano is in elegant condition, has been used for concert work, and is practically new. Special, at..... **$255.00**

LISZT, TORONTO—Beautiful Colonial design Cabinet Grand Piano, in mahogany, full length music rack, 3 pedals, full metal plate, fully guaranteed, has only been out a couple of times to concerts. A1 value at..... **$265.00**

UXBRIDGE UPRIGHT—Cabinet Grand, mahogany exhibition case, 4 ft. 10 in. high, 7 1-3 octaves, 3 pedals. This is a particularly fine-looking piano, and has a good tone, fully guaranteed; regular price, $500.00. Special, at..... **$275.00**

HEINTZMAN & CO.—Upright Cabinet Grand, in beautiful burl walnut case, with three hand-carved panels in top door, swing music rack, 7 1-3 octaves, in elegant condition, case revarnished, new hammers, etc.; five-year guarantee; regular price, $475.00. Special, at..... **$279.00**

This is one of our well-known make, and will give satisfaction to any musician.

Several slightly used Piano Players, including Pianolas, Harmonist, etc.; at prices ranging from $100.00, $125.00, $150.00 and $175.00. All in excellent condition, and a quantity of music given with each machine. SEE THESE.

EASY TERMS OF PAYMENT—$1.50 per week or $6.00 per month, quarterly or half-yearly payments if desired. A nice stool accompanies each piano. Piano-players at very reasonable terms. Freight paid to any point in Ontario, and reasonable arrangements to any other Province.

YE OLD FIRME OF **HEINTZMAN & CO., Limited**

115-117 KING STREET WEST - TORONTO, CANADA

Mention The Canadian Horticulturist when writing

KILL THIS BUG WITH
Swift's
Arsenate of Lead
and save your potatoes.

Destroys also the Coddling-Moth, the Elm Beetle and all other leaf-eating insects. Swift's Arsenate of Lead sticks to the foliage, saving respraying after rains, and never burns or scorches, no matter how strong the solution. Swift's Arsenate of Lead is endorsed by leading fruit growers, truck farmers and horticultural experts. Our booklet, sent free, tells more about Swift's Arsenate of Lead, and gives testimonials from your own locality. Write for it.

MERRIMAC CHEMICAL CO.
61 Broad St., Boston, Mass.

Wentworth Pottery

Standard Flower Pots, Fern Pans, Hanging Baskets, Cut Flower Jars and all Florists' Supplies.

Mail orders given prompt attention.

JOHN CRANSTON & SON, Hamilton, Can.

Mention The Canadian Horticulturist

Special Glass
For Greenhouses

See that each Box exhibits this Trade Mark

GOOD QUALITY, FLAT, EVEN THICKNESS, AND WELL CUT

Pilkington Bros.
Limited
Toronto, Montreal, Winnipeg, Vancouver

Mention The Canadian Horticulturist when writing.

Trees Indicate a Good Fruit Season

FROM advices received from crop correspondents of THE CANADIAN HORTICULTURIST it is evident that fruit trees and bushes have passed the winter in good shape. Peach buds have been slightly injured, but, as yet, not enough to decrease the prospect for a good crop. Small fruits have suffered to a limited extent, especially strawberry plants that were unprotected. While early to say anything definite about crop prospects, it is with confidence that growers are anticipating a profitable season.

MONTREAL DISTRICT

Westmount.—The winter has been a good one for fruit. The prospects promise fairly well for apples. Trees heavily loaded last year did not produce much growth of new wood, so crops may be small.—R. Brodie.

STANSTEAD COUNTY, QUE.

Beebe Plain.—Tip buds of sweet cherries are injured. European plums have come through all right; Japans, except Satsuma, killed back to last spring's wood. No damage is noticeable on apple trees.—D. L. House.

GRENVILLE COUNTY

Maitland.—Weather conditions on the upper St. Lawrence during the winter were everything that could be desired. Trees are in healthy condition. Fruit buds on apples are plentiful; appearances point to a large bloom. Small fruits and strawberries are looking bright and healthy, although some sharp frosts injured unprotected strawberries. Last year only 20% of a crop of apples were harvested, so a heavy crop may be expected this year.—Harold Jones.

DURHAM COUNTY

Newcastle.—Buds do not seem to have been injured but it is too early to estimate prospects for a crop. Oyster-shell bark-louse is very prevalent but growers are fighting it persistently.—H. C. Bowen.

HASTINGS COUNTY

Belleville.—Trees have come through in good condition; buds do not seem to have suffered. Present indications point to a good crop the coming season.—F. S. Wallbridge.

PEEL COUNTY

Clarkson.—Small fruits appear to have pulled through the winter in good shape. The outlook for a good strawberry crop is good. Large fruit trees look well and give promise of good crops.—W. G. Horne.

WENTWORTH COUNTY

Hamilton.—Unprotected strawberry patches have suffered. Protected ones have wintered fairly well. Canning factories are contracting for strawberries at 5 to 5½ cts. a box, but the growers consider this price too low. Peach trees have come through in fairly good condition, although in some sections the buds have been slightly damaged. Raspberry canes have suffered; the snowy tree cricket has done much damage to them.—J. A. Stevens.

Bartonville.—Most trees came through well. Peach buds are quite badly hurt, although plenty are left for a good crop! The San Jose scale has been found in a few places here. The New York scale also is prevalent. Raspberry bushes were quite badly frozen, particularly Marlboro.—H. F. Burkholder.

LINCOLN COUNTY

Grimsby.—Peach, pear and cherry buds appear to be uninjured. The prospects for a crop are good. Raspberries have been slightly winter killed. Strawberries look well.—W. H. Book.

Jordan Harbor.—Fruit trees and bushes came through in first-class shape. Prospects for a good crop are very promising.—John Woods.

Jordan Station.—Strawberries suffered considerably, but probably there will be an average crop. Raspberries and blackberries look well. Pears, cherries, plums and peaches appear to be in good shape for a full crop. The writer's orchard promises to produce its 8th good crop of peaches in 8 successive years.—C. M. Honsberger.

St. Catharines.—Fruit buds look well. The cherry crop is quite promising. Peaches are well laden with buds on young trees. Plums, being scarce last year, should produce well this season. Apples and pears are fair. Raspberries wintered well. Protected strawberries came through all right; unprotected, heaved somewhat.—G. A. Robertson.

Homer.—Peach buds have been damaged, but plenty are left to give promise of a good crop. Pears and cherries look well. Bush fruits appear to have come through all right.—F. G. Stewart.

OXFORD COUNTY

Ingersoll.—Fruit trees and bushes seem to have come through in good shape. Prospects point to a medium crop of apples.—J. C. Harris.

KENT COUNTY

Chatham.—Prospects for a good apple crop are promising; also for pears. Peach trees are badly injured; not only are the fruit buds killed, but even young trees from one to four years planted are dead to the ground. Young pear trees also are killed.—Milton Backus.

Chatham.—Nearly all the peach trees are dead and the San Jose scale is fixing the rest of them. The pear crop will not be as good as last year.—W. G. Lister.

LAMBTON COUNTY

Sarnia.—Uncovered strawberry patches have been damaged by heaving; they will be a failure. Protected plantations have come through fairly well.—W. A. Broughton.

Arkona.—Fruit trees and bushes seem to have come through all right, except peach trees, which have been injured slightly. Prospects for an apple crop this coming season seem good.—W. J. Seymour.

GREY COUNTY

Thornbury.—Generally speaking, fruit buds appear to be in good condition, but the promise of a crop will depend upon weather conditions between now and fruit setting.—J. G. Mitchell.

Low-headed Peach Trees

At the Ont. F.G.A. convention held last Nov., an interesting address on "Low-headed Peach Trees" was delivered by Chas. F. Hale, of Shelby, Mich. In the course of his remarks, he pointed out that peach trees should be headed back when young to not more than 18 inches from the ground. By so forming the head, it costs less to prune, spray, pick, and take care of the tree. By making this work less expensive, profits are increased. The head should be formed with not more than 4 branches, the top one 18 inches from the ground, and each one starting from a different point on the trunk. Never have the centre of the tree higher than the outside limbs. High trees are apt to be broken down by storms. Fruit on low-headed trees is better in quality. Plant peach trees 20 feet apart. Prune and cut back each year. Give clean cultivation in summer until Aug. 1, then sow a cover crop. After planting, the orchard may be inter-cropped for 2 or 3 years, using for the purpose a crop that can be hoed and cultivated. For working under low-headed trees, use both plow and drag. Plow as close to the trees as possible, then use the drag, by going zigzag around the trees.

When trees are in full bearing, prune them by cutting back ½ to ⅔ of the growth each year. Thin the wood out well. The fruit on the limbs should be thinned, leaving them 6 or 8 inches apart. A good average crop for a 6-year-old tree is 2 to 2½ bushels. Among the leading varieties mentioned by Mr. Hale were St. John, Conklin, Engle Mammoth, Elberta, New Prolific, Smock, and for canning, Gold Drop. A good characteristic of low-headed peach trees is the fact that they are not attacked by borers as readily as those that are headed high

Opening of the Vegetable Season

THE crop correspondents of the Ontario Vegetable Growers' Association report that market gardeners are planning for a good season this year. Weather conditions so far this spring, however, have not been conducive to active work. For work with hotbeds, the weather has been particularly bad. The season as a whole has been late. Not much plowing has been done. Even greenhouse crops have not done as well as usual, but there is a good demand, especially for radishes, lettuce and rhubarb. It is probable that onions will be planted extensively this spring; the acreage will be increased on account of seed prices. A large acreage of potatoes also will be planted. Other classes of vegetable will be planted as usual, but it is rather early to estimate the extent of the crops.

OTTAWA DISTRICT

Billings Bridge.—For hotbeds the weather this spring is bad. Radishes are scarce; lettuce plentiful. Lots of rhubarb on the market. Turnips, beets, carrots, onions and potatoes are plentiful. Cabbage is a glut on account of imported goods. Local celery is pretty well cleaned up.—T. R. Mockett.

LENNOX AND ADDINGTON

Napanee.—Potatoes will be planted largely; seed is not plentiful and selling at 90 cents a bag. Table potatoes are selling at $1 a bag. Onions likely will be grown quite extensively. Other vegetables will be planted on a limited scale. —E. M. Sherman.

TORONTO DISTRICT

Humber Bay.—The season is very late. Not much plowing has been done. Some peas and spinach have been sown. The greenhouse and hot bed crops have not done as well as usual owing to the cold and cloudy weather. In Toronto, there is a good demand for all roots and vegetables at good prices.—J. W. Rush.

Bracondale.—Outside rhubarb is not showing yet. Fall spinach will be very scarce. All kinds of greenhouse goods are in great demand, especially radishes and rhubarb.—A. W. Shuter.

PEEL COUNTY

Clarkson.—A large acreage of potatoes will be planted this spring. The tubers have paid well the last three years and constitute one of Clarkson's main vegetable crops.—W. G. Horne.

WELLAND COUNTY

Niagara Falls South.—Spring onions and rhubarb have made very little growth. Asparagus is scarcely showing above the ground. Spinach, parsley and salsify are winter killed. Onions, on account of seed prices, will be planted on an increased acreage. Potatoes are bringing 75 cts. a bu. Canners are contracting for produce at last season's prices; beets, $7 a ton, beans, wax and green, $30; corn, $8; tomatoes, 25 cts. a bu.—Thos. R. Stokes.

HAMILTON DISTRICT

Hot house growers have been very successful with lettuce this spring, getting from 50 to 90 cts. a doz. Green onions are not over-plentiful at 20 to 25 cts. a doz. bunches. Rhubarb is not plentiful yet, but the demand is good at 90 cts. to $1 a doz. bnchs. Radishes are bringing 35 to 50 cents a doz bnchs. Dry onions are scarce and are worth $1.25 a bu. Potatoes are selling at about $1 a bag; the price is expected to rise soon.—Jas. A. Stevens.

WELLINGTON COUNTY

Guelph. Early tomatoes, cabbage and cauliflower are now in the seed beds. No great increase in acreage will be planted, as the growers mostly do their own work, and will not be able to handle more than already undertaken. One grower is doing a very good business growing cucumbers, tomatoes, cauliflower and onions for pickling purposes and intends to increase his acreage of cucumbers and onions as he finds a great demand for good pickles. Very few vegetables will be grown for shipment, as the local demand is quite brisk for a good product. Early potatoes, onions, cabbages, cauliflowers, celery and corn are the crops most commonly grown in this district.—H. S. Peart.

KENT COUNTY

Chatham.—The weather has been unfavorable for hotbeds; many have been completely destroyed. Potato planting has commenced. The acreage in vegetables probably will be about the same as last year. Hotbed lettuce has made its appearance. Winter vegetables are about gone. Potatoes are selling at 90 cts. a bag by the load.—Fred. Collins.

ESSEX COUNTY

Leamington.—Tomato growers are all busy with their plants and hot houses and the prospects for the coming crop are promising. Many new men are going into the growing tomatoes for canning on account of the prospective poor market for tobacco. At 25 cts. a bu. some men are led to believe that they pay well. All the leading growers, however, do not grow them any more.—E. E. Adams.

LAMBTON COUNTY

Sarnia—Not much work has been done as yet. Plants in greenhouses and hotbeds are doing well. Also cabbage in cold frames.—W. A. Broughton.

Vegetable Notes

E. E. Adams, Leamington, Ont.

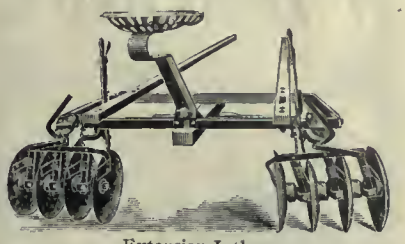
If vegetable products in this district are not handled in some manner different than they have been in the past, very little money will be made by many who are going into the line of early vegetable growing. Far too much stuff is sent into some markets while others are short. The better plan is to sell f.o.b. at point of shipment in place of indiscriminate shipments to commission men. Probably the evil will cure itself in time.

Meetings were held recently by Mr. A. E. Sherrington, of Walkerton, in the interest of the cooperative movement. Just what will come out of it is hardly in view yet. The larger growers are unanimous for it, while some are undecided, and others prefer to handle their own business, and let the other fellow do as he likes Whatever is done in the line mentioned, will require careful handling, as it will be no child's play to handle the large quantity of truck grown here.

A neat little booklet entitled "Potato Culture" is published by the Aspinwall Mfg. Co., Jackson, Mich. It tells the story of potato culture from the selection and cutting of the seed to the harvesting and storing of the crop in the fall. Many other items of interest also are contained in this book. A copy may be had on addressing the firm.

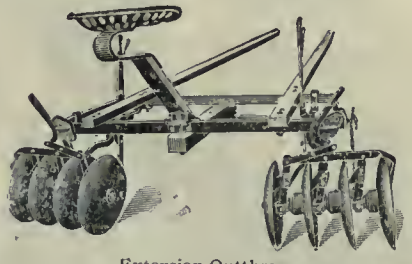
Bulletin 105, Maryland Agricultural Experiment Station, states that there is no danger of injuring young trees by fumigation if reasonable care is exercised in the operation. Careless fumigation, however, early in the fall before the wood has become thoroughly ripened, the exposure to the wash while wet, or the use of the chemical in too great quantities, will result in injury. The exposure of the nursery stock for 30 or 40 minutes in a gas made from one ounce of potassium cyanide, two fluid ounces of sulphuric acid and four fluid ounces of water for every 100 cubic feet of air space, has been found to give good results. It was noted that peach nursery stock was less injured than apple stock with the same conditions, and that some varieties of apples show less resistance than others.

BISSELL'S



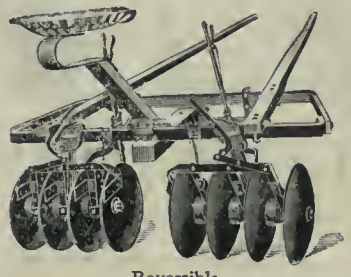
Extension Inthrow

ORCHARD



Extension Outthrow

HARROWS



Reversible

Built in sizes for 1 or 2 horses. Immense capacity for hard work and thorough cultivation.

ADDRESS

T. E. BISSELL, Dept. N, ELORA, ONT.

Mention The Canadian Horticulturist when writing.

HOME GARDENING FOR BEGINNERS

BURNET LANDRETH

Over 30 full page, beautiful photographic illustrations, expressly taken for this purpose, add much to its value. The wide scope of this work may be judged from the following condensed table of contents:

Introduction, Hotbeds and Cold-frames, Plan of Garden, Preparation of the Garden, Preparation and Periods of Seed Sowing, Soaking Seeds and Firming the Soil, Why Seeds Fail to Grow, Thinning Out or Spacing, Irrigation and Mulching, Weeds, Seeds or Chaff, Seed Saving, Pedigree Seeds, Manures and Fertilizers, Injurious Insects and Fungi, Autumn Gardening, The Flower Garden and Lawn, and Cultural Directions.

It is fully illustrated and contains about 300 pages, 5x7 inches. Cloth. Postpaid $1.00.

—THE—

Horticultural Publishing Co.

506-7-8 Manning Chambers, TORONTO

Orchids Now is the time to place your orders for Spring delivery of freshly imported Orchids. **Our prices are very low, quality considered.** Also large stock of established Orchids on hand

CARILLO & BALDWIN
SECAUCUS, N.J., U.S.A.

Small Fruit Plants

GOOSEBERRY, Red, White—CURRANTS, Red, White, Black—RASPBERRY, Red, Yellow—BLACKBERRIES—STRAWBERRY-RASPBERRY—GRAPEVINES, Campbell's Early, Eaton, Worden, Moore's Early, Salem, etc., all hardy sorts—STRAWBERRY PLANTS—HOUSE PLANTS—ROSES—RHUBARB AND ASPARAGUS ROOTS

ORDER EARLY

WILLIAM FLEMING
NURSERYMAN
P.O. Box 54 Owen Sound, Ontario

Books for Fruit Growers

Grape Culturist

By A. S. Fuller. This is one of the very best of works on the culture of the hardy grapes, with full directions for all departments of propagation, culture, etc., with 150 excellent engravings, illustrating planting, training, grafting, etc. 282 pages, 5 x 7 inches. Cloth..... $1.50

Successful Fruit Culture

A practical guide to the cultivation and propagation of fruits, by Samuel T. Maynard. This book is written from the standpoint of the practical fruit grower who is striving to make his business profitable by growing the best fruit possible and at the least cost. It is up-to-date in every particular, and covers the entire practice of fruit culture. Illustrated. 274 pages. 5 x 7 inches. Cloth..... $1.00

Insects and Insecticides

By Clarence M. Weed. A practical manual concerning noxious insects and methods of preventing their injuries, with many illustrations. 334 pages. 5 x 7 inches. Cloth..... $1.50

Spraying Crops

By C. M. Weed. A treatise explaining the principles and practice of the application of liquids and powders to plants for destroying insects and fungi. Illustrated. 140 pages. 5 x 7 inches. Cloth. 50 cents.

These are only a few of the books we handle on horticultural subjects. If interested, write for our free catalog of books.

THE HORTICULTURAL PUBLISHING COMPANY
506-7-8 Manning Chambers - Toronto

Recent Bulletins on Insects and Plant Diseases

Reviewed by Prof. Wm. Lochhead, Macdonald College

PERHAPS of all insects, the gardener finds the cabbage and onion maggots the most difficult to control, hence any information along the line of controlling these pests is welcomed. In the experiments carried on by Dr. J. B. Smith and E. L. Dickerson, of the New Jersey Agric. Expt. Sta. (Bull. 200) in 1906, early, frequent and thorough applications of a carbolic acid and lime mixture gave best results. The mixture is made as follows: Slake the lime to a thin cream, use 3 pints to a gallon of water, and to this add one tablespoonful of crude carbolic acid. It should be applied along the rows immediately after the plants are set, or have made their appearance above ground, the 2nd application 5 days later, the 3rd, 4th and 5th at intervals of a week. The applications may be made with a sprinkling can or spray nozzle, and must be thorough in order to get it well around the plants so that the surface of the ground will be coated to the plants.

The experimenters also recommend the use of carbolic acid emulsion if applied soon enough, often enough and thorough enough. This emulsion is made as follows: Dissolve one pound of soap in one gallon of boiling water; to this add one pint of crude carbolic acid, then churn thoroughly with a pump until a good creamy emulsion is obtained. For use, dilute emulsion with 30 times as much water. Apply at the time stated for the carbolic acid and lime mixture, and use plenty.

THE CABBAGE MAGGOT

(Report of Minnesota Entomologist for 1906.) For 2 years efforts were made to find out a practical remedy for the cabbage maggot. Every reputed remedy that the entomologist had knowledge of, and some new ones as well were tried Good results were obtained in 1906 by immersing the roots at time of setting with hellebore and water (1 part to 2 parts of water), and also by the use of bran and glue, and sawdust and glue. Two pounds of glue, dissolved in one gallon of water, are mixed with one-half pound of sawdust or bran. A handful of the mixture is placed around each plant a day or two after setting. It forms a covering 3 or 4 inches on the ground, and closely around the stem, through which the maggot, when it hatches from the egg, is unable to make its way to the plant tissue below the surface. The experiments will be continued in 1907.

THE GRAPE BERRY WORM

(Circular 63, Ohio Expt. Sta., by H. A. Gossard and J. S. Houser, Nov. 15, 1906.) The reviewer found the Grapeberry Worm quite abundant in many vineyards in the Niagara district in 1905, hence grape growers will be interested in the recommendations of the Ohio experimenters. The borders of vineyards should either be plowed or burned over to destroy the wintering cocoons, and then thorough sprayings with poison Bordeaux should be given, the first before blossoming, the second immediately after blossoming, and the third 10 days or 2 weeks later. The writers recommended double-spraying of the rows of vines, and the addition of some form of soap to the poison Bordeaux as sticker. It will be noted that the sprayings recommended as effective against the Grapeberry Worm will also serve to ward off the mildew and the black rot. Arsenate of lead is to be preferred to Paris green as the poison ingredient in the Bordeaux.

APHIDS AFFECTING THE APPLE

(Circular 81, U.S. Dept. of Agriculture, Mar. 9, 1907, by A. L. Quaintance.) Reference is made to 4 species of plant lice infesting the apple, viz.: The Woolly Apple Aphis, *Schizoneura lanigera;* the European Grain Aphis, *Siphocoryne avenæ*; the Apple Aphis, *Aphis mali*; and the Rosy Apple Aphis, *Aphis malifoliæ*. Descriptions are given of the 3 latter species, their differences noted, and their life histories, as far as they are known, outlined.

Regarding method of treatment, nothing new is recommended. Special mention, however, is made of the importance of pruning the terminal twigs, for it is on these that the majority of the black shining eggs are to be found. The value of the lime-sulphur mixture, as a destroyer of aphis eggs, is noted, as is also that of the common substances in use as spring or summer sprays, such as kerosene emulsion solution, whale-oil soap solution, strong tobacco decoction, and crude petroleum emulsion. It is important that these spring applications be made immediately after the eggs have hatched, for after the foliage is well out and more or less distorted from the presence of the plant lice, effective spraying is quite difficult, since many of the insects on the lower surface of the curled leaves will not be hit by the spray.

THE APPLE LEAF MINER

(Bull. 45, Storrs, Conn., Agric. Expt. Sta., Dec., 1906, by C. D. Jarvis.) This small Apple Leaf Miner, which has been frequently observed in Ontario orchards, but never to an alarming extent, was very abundant in Connecticut during the past season. The adult of this miner-caterpillar is a minute moth, about the size of an ordinary clothes moth. Two broods occur during the season, the second being the more serious. The first brood begins with egg laying about the 2nd week in June, the 2nd in last week of July. The caterpillars remain over winter in their silk-lined mines. The writer of the bulletin sees only one method of dealing with this miner, viz.: To gather up and destroy the infested leaves, or plow them under, preferably the latter, for the insect feeds within the leaf and cannot be reached with insecticides.

SOME POTATO DISEASES

(Bull. 71, Wyoming Agric. Expt. Sta., Jan. 1907, by A. Nelson.) Four diseases are discussed in this bulletin, viz., Early Blight, Late Blight, Scab, and the Rhizoctonia disease Careful and accurate descriptions and the best methods of controlling these diseases are given The Rhizoctonia is known under several common names, such as stem rot, rosette, little potatoes and blackfoot. The fungus attacks the stem at or just below the surface of the ground, destroying the bark in whole or in part If the attack be a severe one it may result in the death of the plant; if less severe, it may induce a wet rot, and thus result in the death of the plant; or it may simply girdle the stem the plant continuing to live, and often producing as a result of the girdling, an enlarged and apparently vigorous top.

There are 3 stages of this fungus—the *Rhizoctonia* stage, where only threads are seen; the *corticium* stage, where minute summer spores are observed, and the *sclerotia* stage, where compact bodies occur on the tubers and the stem These sclerotia, as they are called, carry the life of the fungus over to the next growing season. The treatment recommended is to plant tubers free from sclerotia, rotate the crops, and treat the tubers for planting with formaline solution as is done for the prevention of scab.

Please Send Us Four Names.—Should each reader of THE CANADIAN HORTICULTURIST send us the names of four of their friends who are interested in fruit growing, gardening, and floral life, and who are not readers of THE CANADIAN HORTICULTURIST, we will send them samples of the paper to interest them in it. Thus we may be able to nearly double our present circulation Sending these names would not greatly inconvenience you, and they will be of great value to us. Will you cooperate with us, in our efforts to further increase our circulation, by sending in these names?

Words of Appreciation

Over 40 horticultural societies give THE CANADIAN HORTICULTURIST to all their members. If you are one of these members, you can help us by getting your friends to join your society. If you have a friend who is interested in gardening, fruit growing or amateur flower culture, show him a copy and ask him to subscribe.

The many great improvements that have been in process ever since we cut the price in half have brought us many letters from our friends. J. I. Graham, Sec. Centre Gray Farmers' Institute, writes: "You have wrought marvels in sending the quality of THE CANADIAN HORTICULTURIST up, and the price down." Jas. Pate, Brantford, Ont., writes: "I have read THE CANADIAN HORTICULTURIST for 16 years and appreciate it more each issue."

Here are a few more: "THE CANADIAN HORTICULTURIST is certainly greatly improved in editorial matter, as well as in appearance. As I have just purchased 7 acres outside the city line, I would greatly miss the paper if I did not renew."—Albert A. Small, Buffalo, N.Y. "I saw THE CANADIAN HORTICULTURIST recently in a relative's home, and decided that I must have it for the practical material it contains on horticulture. Here is my subscription and best wishes."—W. D. Broatch, Hamilton, Ont. "You are turning out a splendid magazine, and it is certainly cheap, considering the valuable matter it contains."—R. MacDougald, Westville, N.S. "THE CANADIAN HORTICULTURIST is easily worth 4 times the money. The valuable articles by Prof. Macoun on 'Hardiness of Trees,' in the Dec. issue, and by Mr. McNeill, in later numbers, are of much value to horticulturists."—R. Brodie, Westmount, Que.

With all of these good friends working for our interests we are confident of adding many new names to our list each month. We ask our old and new friends to help increase the number of our readers. The more readers we have the more power will be given our editor to help advance the cause of horticulture in all its branches.

Needs of Fruit Industry

While Mr. J. A. Ruddick was giving his evidence, before select committee on agri. and colonization, a discussion took place as to manner of regulating the temperature of cars upon which fruit was transported. Some cars, he said, were iced in summer and heated by stoves in winter. Frequently the cool cars were too cool and the warmed cars too hot, and so the goods were spoiled by the very means designed to preserve them. Mr. Ruddick explained the difficulty of regulating the temperature of cars in transit, where they were attended to by men who had no interest in them and where it was so difficult to trace or punish carelessness. Mr. E. D. Smith pointed out that in the tender fruit section there was a great need for 1 or 2 inspectors. Mr. Ruddick admitted the necessity and said that he would make a note of it and see what could be done. In reply to a question as to whether the Govt. had an inspector at Portland he said that there was none.

I have been experimenting with Japan plums; Satsuma, so far, is the only variety I have succeeded in wintering. We ought to have a law in this province compelling every land owner to cut down and burn all trees that are infected with black knot. New York State has such a law, and it works well. We may get one some day.—D L. House, Stanstead Co., Que.

38 Leading Varieties
of STRAWBERRY and CANE BERRY PLANTS
7 Varieties SEED POTATOES
Illustrated Catalogue Free
JOHN DOWNHAM, Strathroy

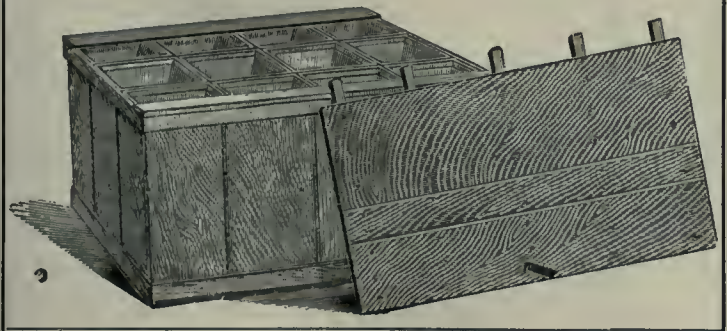
"PAGE FENCES WEAR BEST"

Made of High Carbon Wire—we'll prove it to you. COILED, not crimped. This makes it still stronger in service. It stays taut. Painted WHITE over heavy galvanizing—rust proof. Experienced dealers to erect it. Leads all in sales—as in merit. Get illustrated booklet and 1907 prices before buying. 209

THE PAGE WIRE FENCE COMPANY, LIMITED, Walkerville, Toronto, Montreal, St. John, Winnipeg

BASKETS

We are Headquarters for all kinds of Splint Baskets



Veneer supplied for the protection of trees from mice during winter

FRUIT PACKAGES A SPECIALTY

SEND FOR OUR PRICES

The Oakville Basket Co. - Oakville, Ont.

Mention The Canadian Horticulturist when writing

ABUNDANT CROPS OF HIGH QUALITY FOLLOW THE USE OF

Tobique Plaster
OR GYPSUM

ALL KINDS OF LAND REQUIRE THIS FERTILIZER

Fruit Growers—Flower Growers and Vegetable Growers

SHOULD USE TOBIQUE PLASTER

SPREAD IT ON YOUR LAWN OR GARDEN
THOUSANDS OF TESTIMONIALS FROM USERS

R. C. Mosher, Manager, Plaster Rock, N.B.

WESTERN AGENT
THE F. G. TERRY CO., 31-41 GEORGE ST.
TORONTO, ONTARIO

Mention The Canadian Horticulturist when writing

Varieties for Ottawa Valley

Ed. THE CANADIAN HORTICULTURIST: I read with much interest the article in THE CANADIAN HORTICULTURIST for April on varieties for the north by Mr. G. C. Caston. He states that the Spy is a desirable variety and that growers cannot have too many of them. He also states that Spy, Baldwin, R. I. Greening and King, must be top-grafted on hardy stock. Further, he states that Burbank is the best of the Japan plums. Now, we consider ourselves in the northern part of the fruit belt, and perhaps more properly the far north. Mr. Caston's letter may not apply to us; but, for fear that some of the readers of THE CANADIAN HORTICULTURIST in the Ottawa Valley may be advised to plant some of the varieties listed in Mr. Caston's article, I wish to say that his list is of no value here. Spy will bear if top-grafted on hardy stock, but it does not attain perfection as it does along the great lakes. The other varieties named are of no value whatever.

We would advise the planting of Wolf River, Wealthy, Fameuse and McIntosh Red, as we can grow them to perfection, particularly the latter, which is a fairly good annual bearer, and the fruit brings from 50% to 75% more money than Spys at their best. Of course, it is necessary to spray them if perfect specimens are desired, but we should spray orchards of any variety if we wish to maintain good health in the trees. There is no difficulty in getting $5 a barrel for No. 1 McIntosh Red. If a few long keepers are wanted for home use (not for market), we may plant Scott's Winter, Canada, Baldwin, North-West Greening, Patten's Greening or Milwaukee. As to raspberries, I may say that Herbert is perfectly hardy in localities where Cuthbert will winter kill 3 years out of 5. The fruit is larger than Cuthbert, of better quality, just as attractive in appearance and as good a shipper, and for the last 3 years it has averaged at the Central Experiment Farm 5 times as large fruit as the best other kinds on the market. Other experimenters have had equally as good results.

In strawberries, I have tested about 150 varieties, and after several years' experience I consider Bederwood, Senator Dunlap, Haverland, Sample, Parson's Beauty, Pocahontas, Lovett, Marie and Buster the best general purpose varieties.—W. J. Kerr, Ottawa, Ont.

Should Cooperate

A novel method of selling Canadian apples to the market in Great Britain was suggested to THE CANADIAN HORTICULTURIST not long ago by Mr. Derbyshire, a member of the firm of the North of England Fruit Brokers Co., Limited, while he was on a visit to Canada. "Canadian growers," said Mr. Derbyshire, "do not like consigning their fruit to G. Britain under present conditions, because, in the majority of cases, they do not know the people to whom they are consigning it, and they have no method of ascertaining after it reaches G. Britain if it sells for the prices claimed. I would like to see more cooperation between the Canadian growers and the British buyers, and would suggest that the growers should unite and send a traveller to England. A number of British buyers could unite in the same way and keep a representative in Canada.

"The growers in Canada would have to have enough capital to manage cooperative plants, and they would have to look after the picking, grading and shipping of the apples. The representative of the British firms could visit these packing houses at frequent intervals and thus give the British buyers assurance as to the quality of the fruit being packed and its condition when it was shipped. Their representative in Great Britain would be able to examine much of the fruit on its arrival in Great Britain, and to keep track of the prices at which most of it was sold. He could also report on lots that were bad on arrival. Such an arrangement would give both the buyers and sellers more confidence in each other, and should help to place the system of selling and buying apples on a better basis.

Free Surveying for Drains

During the past two seasons the Department of Physics, at the O.A.C., Guelph, has been endeavoring to emphasize the importance of under drainage, and arrangements have been made whereby its services are available to anyone wishing advice in matters relating to drainage. They have full equipment for drainage survey work, and when requested, visit a man's place, survey his land, give him a map, showing elevations of all parts surveyed, together with location of drains, their grade depth, etc.

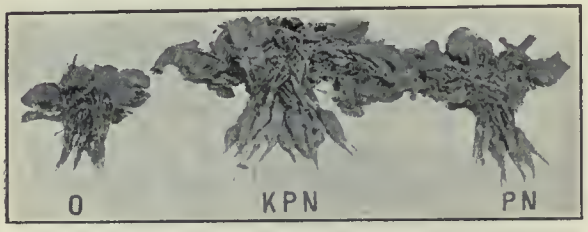
There is no charge made for this work except the travelling expenses of one man, consisting of railway fare, meals and cartage of instruments. These expenses are very light, as arrangements have been made with the railway companies whereby the surveyor can travel at one cent a mile each way, *i.e.*, a man living 50 miles from Guelph would have an outlay of $1 for railway fare and 25 or 50 cents for cartage; one living 100 miles away, an outlay of $2 for railway fare and 25 or 50 cents for cartage, and so on. Ontario farmers should take advantage of this opportunity to secure such valuable service at so little cost. Address requests for assistance or information to W. H. Day, Dept. of Physics, O.A.C., Guelph.

Mr. T. B. Revett, Ontario Department of Agriculture, says that most peach trees in the Essex peninsula have been killed during the past winter. Not only have the buds been destroyed, but, in many orchards, whole trees have been killed to the ground. Mr. Revett also said that nursery stock in the vicinity of Strathroy and at some other points has been badly injured.

POTASH
for FIELD, GARDEN, ORCHARD

POTASH promotes maturity and counteracts the effect of an excess of nitrogen in the soil produced by a too heavy application of farmyard manure or from other causes. POTASH is a direct plant food and is indispensable.

Fertilizer Experiment on Radishes by Otto Herold, Waterloo, Ont., 1906



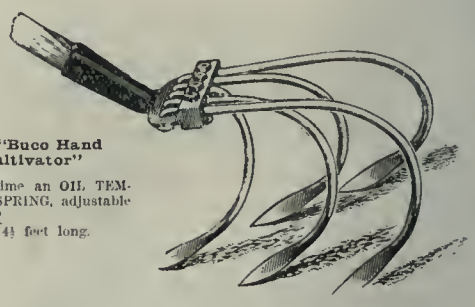
Treatment: Unfertilized — Result: Non-saleable
With Potash — $200.00
Without Potash — $20.00 per acre realize

POTASH in the highly concentrated forms of Muriate of Potash and Sulphate of Potash is obtainable of all leading Fertilizer Dealers. Pamphlets treating of the cultivation and fertilization of all farm crops will be sent free on application.

The Dominion Agricultural Offices
of the Potash Syndicate
1102, 1105 TEMPLE BUILDING, TORONTO

Mention The Canadian Horticulturist when writing

Cleveland Lawn Weeder



The "Buco Hand Cultivator"
Every time an OIL TEMPERED SPRING, adjustable to width.
Handle 4½ feet long.

The "Buco Hand Cultivator"
KILLS WEEDS—GROWS VEGETABLES
It gets DOWN DEEP after the weed roots, cleans them all out and loosens soil thoroughly. Saves time, muscle and temper, and produces the cleanest, nicest rows of vegetables you have ever seen. Great around trees and shrubs. Each $1.50

Cleveland Lawn Weeder
NO MORE BROKEN BACKS
This little device gets at the root of the evil and removes it bodily. The curved edge of the blade enters and loosens the soil, pressure on the lever then causes the toothed jaw to grasp the plant, and a slight pull suffices to dislodge it without disturbing the surrounding sod. Each..... 80c.

DUPUY & FERGUSON
38 Jacques Cartier Square - Montreal, P.Q.

Mention The Canadian Horticulturist when writing

Imperial Bank
OF CANADA

Established 1875

Head Office, - Toronto

Capital Paid-up, $4,700,000.00
Rest, - - $4,700,000.00

Savings Department at all Branches
Interest allowed on deposits of One Dollar and upwards and credited four times a year.

SPRING, SUMMER AND AUTUMN
ALL THE YEAR ROUND
A GOOD LADDER
IS A NECESSITY

WAGGONER EXTENSION LADDER

enables you to hand-pick all the apples on the tree. Its extension feature permits it to run through the tree—not only to rest on the outside

Good for every purpose about a farm that a ladder is used for.

Very light and absolutely safe.

Waggoner Ladder Co., Limited
London Ont

Your early order will enable us to ship immediately. Don't wait until you want to use the ladder before placing your order

Mention The Canadian Horticulturist when writing

An Appraiser of Vegetables May Be Appointed

During April a deputation of leading vegetable growers waited upon Hon. Wm. Paterson, Minister of Customs at Ottawa, and on behalf of the Ontario Vegetable Growers' Association requested that the Dominion Government should appoint an official whose duty it would be to set a fair value on the vegetables imported into Canada, so that they could not pass the customs at a ridiculously low valuation. While there is a duty on vegetables imported into Canada, it has been little protection to the vegetable growers, because of the fact that the people in the United States, who ship vegetables into Canada, value them at such a low figure that the duty on such valuation is so low it does not serve as any protection to the Canadian vegetable growers. The Government listened attentively to the representations of the committee, and gave reason to believe that the requests made would be granted.

The deputation was composed of Messrs. R. J. Bushell, of Kingston, the president of the Ontario Vegetable Growers' Association; Thos Delworth, of the Toronto Branch, and some nine members of the Ottawa branch, for whom Mr. Williams and Mr. Farquarson acted as spokesmen. The deputation was introduced by Mr. Archie Campbell, M.P., of Centre York, who was assisted by Mr. Avery, M.P. for Frontenac, and Mr. M. Devlin, M.P. for Wright County. In introducing the deputation, Mr. Campbell pointed out that the Dominion Government was being defrauded in the matter of customs receipts by the vegetables being brought into Canada at a price below their true value. He pointed out that the vegetable growers are men who invest a large amount of money in their business, and that having to meet the competition of vegetables from the United States is a serious hardship to them.

Mr. Bushell referred to the importance of the vegetable industry, showing that in Ontario alone it represented an investment of $10,000,000. In the remarks of Mr. Delworth, attention was drawn to the fact that many of the vegetables imported into Canada have a damaged appearance, and are passed at a very low value, but after the boxes are opened and carefully inspected, it is found that the percentage of damaged vegetables is much smaller than first appearances indicated. The Dominion Government excludes Chinese labor because it believes that Canadians should not have to compete with the Chinese. By allowing United States vegetables to be imported into Canada at prices below their true value, the Government is not protecting Canadian vegetable growers against the products of the Chinese growers in California who send a large quantity of celery into Canada. Mr. Delworth further pointed out that much of the vegetables imported into Canada are the tail end of the crops of United States growers. The United States growers sell 80% of their crops in their own markets, and rather than flood their own markets with the remnants of their crops, they ship such vegetables to Canadian markets, and make Canadian markets a dumping ground for such products.

Mr. Williams assured the Government that Canadian growers do not desire to be protected except during a few months in the year when their own vegetables are ready to be marketed. At present the Canadian growers when they offer their fresh vegetables have to meet the competition and the low prices caused by the importation of large quantities of cheap United States vegetables.

Hon. Mr. Paterson stated that he believed that the dumping clause can be utilized to prevent vegetables being brought into Canada as they have been in the past. He promised to take steps to see that vegetables when crossing the border have a fair valuation placed on them.

Every year each one of us consumes 15 lbs. of salt—Science says.

— More than a pound a-month.

Just as well to have it pure.

Your grocer will tell you there's nothing purer than

Windsor Table Salt
167

FLOWER POTS

Sond us your Spring order for pots, etc.; which will receive our prompt attention.

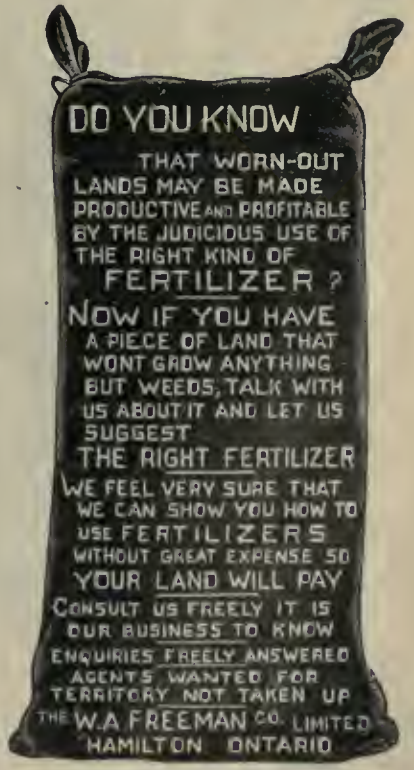
Try our pots for growing early tomato plants in.

SEND FOR PRICE LIST AND CATALOGUE

THE FOSTER POTTERY CO., LIMITED
Main St. West, Hamilton, Ont.

Mention The Canadian Horticulturist when writing

Profit Producing Fertilizers



UNDERWOOD

If you use a typewriter, use the best. It is economy—economy of time, of money, of labor

The Underwood is the Best Typewriter

That is a claim made for every typewriter, but the Underwood has the advantage of being able to "deliver the goods." It has won the Championship of the World in eight successive contests. Here is the list :

Chicago, March, 1906, 3 Events
New York, Nov., 1906, 2 Events
Chicago, March, 1907, 2 Events
Boston, March, 1907, 1 Event

IF YOU USE A TYPEWRITER, USE THE BEST

United Typewriter Co.

Limited.

ADELAIDE STREET EAST, TORONTO

and in all the principal cities

Mention The Canadian Horticulturist when writing.

THE PHOTO-ENGRAVERS LIMITED.

DESIGNERS ENGRAVERS
ILLUSTRATORS AND ETCHERS

10 JOHNSTON LANE

TORONTO PHONE MAIN 5251 ONTARIO

Mention The Canadian Horticulturist when writing

Mention The Canadian Horticulturist when writing.

The Canadian Horticulturist

Vol. XXX JUNE, 1907 No. 6

Thinning Fruit on Trees Increases Profit

PRUNING the wood and thinning the fruit are allied processes in fruit culture. Any system of pruning materially affects the productiveness of the tree in the following and succeeding seasons. The practice of heading-in peach, pear and plum trees is virtually a thinning process as it removes a portion of the bearing wood. To supplement the work of pruning and to affect the productiveness of the current season it is necessary to remove by hand the superfluous fruits. By doing this, some important things are accomplished. The trees will be stronger and more shapely; they will not break or be injured from an over-burden of fruit; the crops of fruit will be more regular; the labor in culling will be reduced; and the fruits will be greatly improved in size, quality and appearance, and consequently will bring a much better price. Thinning is a means of insurance against insect and fungous enemies, as it not only destroys infected specimens, but by stimulating the growth of foliage and twig, it enables the tree to better withstand such depredations.

Many growers think that the operation of thinning is expensive. As it is performed when the orchard is giving no returns, it may seem expensive at the time, but after-profits and increase in profits fully compensate for the early expenditure. A carefully recorded trial for one season will convince the most sceptical that *it pays to thin.*

When apple trees are thinned, the larvæ of the codling moth are killed when the removed fruits dry up or decay on the ground. The same thing occurs in the case of pears and quinces. When plums and cherries are thinned, it destroys also large numbers of curculio.

Peaches should be thinned as soon as the fruit is nicely formed, and before the seeds commence to harden. The usual custom is to thin soon after the so-called "June drop." which takes place when the peaches are about the size of marbles. All diseased, stung, distorted and injured specimens should be picked off, regardless of position. A sufficient number of others should be removed so as to leave on the trees the best specimens, not less than five or six inches apart. The best grade of fruit is obtained when no more than three or four peaches are left on a fruiting branch, the previous year's growth. In the following letter to THE CANADIAN HORTICULTURIST, Mr. E. D. Smith, M.P., of Winona, Ont., states his experience:

"My experience in thinning fruit on trees has been eminently satisfactory. Some four or five years ago was my first trial, and it was in the nature of an experiment. I had ninety Triumph peach trees, four years old

A Marked Improvement

I congratulate THE CANADIAN HORTICULTURIST on the very material improvement that has taken place in its make-up and in the character of its articles during the past two years. May it have the greatest measure of success.—William Stuart, Horticulturist, Vermont Agricultural Experiment Station.

This is a variety that loads very heavily. These trees were in the pink of condition and, in June, I made an estimate of the number of peaches on an average tree, which was about 1,000. I estimated that these trees could not sustain more than 400 peaches to bring them up to the size of No. 1 peaches, or eighty to the eleven-quart basket, making five baskets from a tree. I therefore, thinned off an average of 600 peaches from every tree, leaving the peaches on an average four inches apart. I harvested just about five baskets to the tree, seventy-five per cent. of them being No. 1, which I sold at sixty cents a basket. The remainder were good, strong No. 2, which I sold at forty cents a basket. I left five trees as a check. These five trees were so heavily laden that the peaches were too small for even No. 2, though the land was exceedingly rich. They were not suitable to send to my customers; I sent them to a commission market, where they could be sold for what they were worth. I got for them just enough to pay for the baskets and the express and cost of picking, no more. Besides that, two of the trees were split to pieces and took three years to recover.

"After this experience I did not require to make further experiments. The only fault in this one was that I did not thin quite close enough. If I had thinned a little closer I would have had all No. 1 peaches. This should be the aim of every grower. There is no necessity for any No. 2 peaches being grown, barring accidents or extraordinary dry seasons. The price of No. 2 peaches ought to be set very low by buyers.

"The knowledge of the immense benefits of thinning peaches is beginning to produce a revolution in regard to the varieties of peaches to plant. All varieties which bear extremely heavy are necessarily bound to produce small peaches. On the other hand, most of the varieties which bear heavily are naturally hardy and produce almost annual crops. Take, for instance, Crosby and Longhurst. These two varieties scarcely ever fail of a crop and can be planted over a much wider area of territory than such varieties as Early Crawford, Late Crawford, Fitzgerald, Elberta, etc. These and many others are large, fine sorts. Of late, people have stopped planting in the fruit belt all white peaches and all varieties that do not naturally grow to be large in size, realizing the absolute necessity of having large, yellow peaches, but now they are beginning to discover that there is another way of getting large peaches and a much surer way because, with the varieties named and most others of the large sorts, there is a great uncertainty as regards the crop. One year there is a good crop, the next year, perhaps, there is a failure owing to the buds being comparatively tender. Not so, however, with these hardy sorts; they bear almost annually, and if the peaches are thinned down to about five or six inches apart, they will be of a size to go for strictly No. 1 peaches. On good ground they are perfectly satisfactory for No. 1 fruit, and the Longhurst is of a specially good quality for canning. The Crosby is also of excellent quality.

"In consequence of finding this out from the very considerable amount of experimenting that has been done during the past few years in this line, many growers are now contemplating planting these hardy, regular bearing sorts, which produce fruit of choice quality. Thinning is an inexpensive matter. I kept an accurate account of the cost on many occasions, and it only amounts to about one cent a basket on the fruit on moderate-sized trees. On large trees a step-ladder had to be used and it would cost more, probably two cents a basket.

"Just about as many baskets can be got from a tree, however, by thinning to five or six inches apart, as if left unthinned, and the peaches are worth two or three times as much money per basket. The maturing of the seed of the peach seems to be the heaviest drain upon the tree; consequently, when from one-half to three-quarters of the peaches are pulled off, the drain upon the tree is immensely reduced and this unused strength goes to develop the size of the peaches remaining."

Ripe Strawberries and How to Handle Them

BEFORE picking time, the strawberry patch should be mulched between the rows with straw or cut grass. This may have been done earlier in the spring by the use of material that was employed as protection for the winter. Unprotected patches and those on which the covering was light, or from which the material was removed in the spring, should be mulched a few days previous to the time for harvesting. The main purpose of this mulching is to prevent the berries being sanded by rain and wind near picking time. It will make the work of picking easier and it will help to conserve soil moisture and thereby increase the size of the fruit.

The Right and Wrong Way to Pick Strawberries

The strawberry in the left hand shows how it should be picked, with just enough stalk to catch hold of. The berry in the right hand is wrongly and carelessly picked

Every fruit farmer who grows strawberries for market should erect a shed to be used to shade the fresh fruit from the sun, and to be used in packing crates and preparing for market. The shed can be built in the field or made portable.

There are two distinct classes of strawberry growers, the few who cater to a fancy trade and the great majority who aim to sell in the general market. The former cannot succeed unless he has private customers or has the intelligent cooperation of his commission merchant. These growers are particular in their methods of picking and marketing, more so than are those who sell to the general buyer. For the best market, choice fruit should be picked by pinching off the stem, touching the berry as little as possible. See the illustration. For the general market, the fruit may be picked by running the fingers beneath the fruit and hull and removing without any of the stem adhering. In either case, the picker should not take direct hold of the fruit.

Fresh picked berries should not be left in the sun. Each box should be placed 'neath the shady side of the foliage, and when four or five are picked, the number depending upon the size of the carrier used, they should be removed at once to the shed. For rapid work, small boys or girls should be employed to carry the picked fruit from the picker to the shed and to supply the former with fresh boxes.

Boys and girls are not satisfactory as pickers, but when labor is scarce they must be employed. Women make the best pickers because they have better judgment in sorting and caring for the fruit, are much less inclined to idleness and play and know better the value of their wages. In a field of considerable size, a superintendent constantly on the ground is essential. He must keep a close watch on the work of the pickers, see that the berries are picked clean and at the proper stage of ripeness, that none are destroyed by lounging or tramping upon, that assorting is properly done and the boxes or baskets well filled, and that the boxes are properly crated for the delivery wagon.

The boxes should be as clean and bright as they can be secured. Nothing will detract more from the price of a quart of strawberries than a soiled box. The crates also should be clean and well built and should bear the grower's name.

In crating the boxes, they should be alike from top to bottom, both the berries in each box and the boxes in each crate. As far as possible, a crate should be made up of one variety. In an exacting market, there is much importance in this assorting and care of the fruit.

Packing Shed on Fruit Farm Where Big Strawberries Are Grown

Plantation of Mr. Newton Cossitt, Jr., Grimsby, Ontario.

The Relation of Tillage to Soil Moisture

PROPER and timely tillage is one of the great secrets of success in orcharding. Tillage improves the texture of the soil; it brings the plant foods of the soil into that condition most easily absorbed and used by the plant; it saves soil moisture; it destroys many insect pests; it benefits the soil in many ways. In this article we shall discuss one phase of the question only: The relation of tillage to soil moisture.

GRASS IN THE ORCHARD

In many parts of our country, orchards in grass or weeds are very common, so much so that one would judge this method of treating the orchard the correct one. In exceptional and isolated cases, it may be advisable to have the orchard in sod. Usually, however, the fact is, as the writer once heard it aptly put, grass in an orchard has the same effect as a number of pumps in the land, pumping the water out of it, and robbing the soil of the moisture needed by the fruit trees.

Investigations have proven that the loss of moisture from a soil covered with growing grass is nearly 2½ times greater than that lost from naked soil; also, that evaporation from a soil that is kept constantly stirred by cultivation is only four-fifths that from a hard surface. Definite experiments under natural field conditions have shown also that water saved during a week on an acre of land by cultivation would be equal to, at least, one-fourth of an inch of rainfall, or about 7,000 gallons. These investigations, and countless others that could be cited, show that cultivation of the soil is productive of good results, that tillage is most important in the conservation of soil moisture.

Cultivation, or stirring of the surface soil, saves the moisture in the depths below by producing a top layer of loose soil and thereby preventing evaporation of moisture from the surface. In other words, it covers the soil with a surface mulch of earth. It is a common observation that ground beneath a light covering of straw, sawdust or even boards, is always moist even in time of severe drought. This covering has merely prevented the escape of the moisture that was already in the soil. A mulch of finely pulverized soil acts in precisely the same manner.

WATER MORE IMPORTANT THAN FOOD

Orchard trees suffer more from a lack of moisture than they do from a lack of plant food. This is particularly true in seasons of long droughts. A drought seems a great calamity but, oftentimes, it is not quite so formidable as one might suppose. In some of the western parts of the United States, fruit trees are carried through a season of no rains, lasting five months, merely by thorough cultivation. The length of the season that can be bridged by tillage alone depends largely upon the quantity of water that has been stored in the soil by the snows and rains of winter and spring.

Tillage also increases the water-holding capacity of the soil. If the surface soil is light and loose, the rains that fall during the summer months will readily soak into it. But if the surface is allowed to become hard and baked, much of this rain is lost by surface drainage. Seldom, however, sufficient rain falls in summer to meet the demand of orchard trees. Hence, the conservation of that which does fall is an important factor in orchard management. We should husband this rain by tillage and give our trees the moisture needed for best results.

Deep working of the land and fall plowing also play an important part in controlling soil moisture. The former, by encouraging the roots to go deep, rather than run along just below the surface; and the latter, by leaving the surface of the soil uneven and thereby permitting the soil to absorb and retain large quantities of the winter rain and snow.

WHEN AND HOW TO CULTIVATE

In the preceding remarks, the attention of the reader has been directed to the principles of the operation. The detail of the actual work rests with the grower and his particular conditions. If he has clearly in mind the objects to be

Rye Cover Crop in Dwarf Pear Orchard

A part of the fruit orchards of W. M. Orr & Son, Fruitland, Ontario, taken about five years ago. See illustration on next page.

obtained, the practical application of the principles should be a comparatively easy matter. As a general statement, however, that tillage is best that begins as early in spring as the land can be worked and continues at intervals of 10 days or two weeks until midsummer.

Cultivate also after every rain, so as

Clean Culture in Quebec
Orchard of R. W. Shepherd, Como.

to keep the surface mulch in good condition. Cultivate every particle of soil to a depth of three inches. On heavy clay soils, deeper cultivation in early spring will sometimes give good results; but clayey soils should not be worked when too moist. About midsummer, when the wood of the tree is nearing maturity for the season, cultivation should cease altogether. At the last cultivation, a cover crop should be sown.

The Currant

Wm. Fleming, Owen Sound, Ont.

Currants will grow in any soil, but will not bear sufficient crops to make them profitable except in rich, cool soil with a clay subsoil. Do not plant too close. Currants do not bear much until the third year. By that time the plant should be quite large, five or six feet across, and there should be plenty of room for sunshine and scuffling, hoeing and gathering the fruit; therefore, seven to eight feet apart each way is what gives the best returns. Two-year plants should be set and, to ensure a perfect catch and a large bush, set the plants double in well-cultivated, clean, rich ground, the same distance apart each way, so as to allow cultivating by horse two ways.

There are many varieties of black currants that deserve notice, and which give good satisfaction, such as Black Naples, Lee's Prolific and Champion. Lee's Prolific is equal in quality to the others and is the best bearer.

The best of the red currants are: Fay, Ruby, Cherry, Victoria, Versailles, Star, Red Cross and Perfection. Victoria and Versailles are the most abundant bearers, but small in size of fruit. Ruby bears larger fruit and commands a higher price. Fay is the largest fruit, but a shy bearer. Perfection, a new variety, being a cross between Fay and White Grape, promises to be the best red currant so far. It is large in size and an abundant bearer.

In the white currants, the leading varieties are White Grape and White Dutch. The former is by far the better. It is large in size, of fine quality and an enormous bearer.

Currant Bush Pests

W. E. A. Peer, Freeman, Ont.

The currant worm is, perhaps, the most serious pest of the red and white currants. These, if left alone, in a very few days will strip a bush of its leaves, and the fruit for that season becomes of little or no use. These worms make their appearance in the middle or latter part of May. If treated at once to a dose of Paris green they will give little or no further trouble. It sometimes happens, however, that a second brood makes its appearance about the time the fruit is ripening. As the fruit is about ready for market, many neglect their bushes at this time, thinking that the loss of leaves then is of little consequence. Here they make a mistake, as the leaves have yet to develop the fruit buds for the next season and prepare the plant for the coming winter.

When branches of a currant bush show loss of vitality, and the currants wither, there is in all probability a currant borer at work in the pith of the branch, sapping its energy. When this occurs, cut out the branch at once and burn it, thus destroying the pest it contains. In localities where the San Jose scale exists currant bushes should be carefully watched. This insect seems to thrive and do exceedingly well on this particular plant, upon which it is frequently overlooked. Orchardists frequently have had their spraying operations partly nullified by neglecting old currant bushes that were badly infested with scale in close proximity to their orchards.

Planting Fruit Trees.—When fruit trees are to be planted the soil should be dry and in good condition, thoroughly plowed, and so prepared as to be fit for the production of a good crop of corn or wheat. If naturally moist, it should be thoroughly drained, and if exhausted by cropping, carefully dressed, as trees will not thrive on weak soils, or on such as are saturated with stagnant moisture.

Care of Peach Trees.—I try to keep my peach trees healthy by fertilizing them and cultivating frequently. In June I hoe around the trees and cut out all borers. In the early spring the trees are pruned slightly, especially the varieties that are in the habit of overbearing. In June those that overbear are thinned by picking off the surplus, leaving the peaches three to six inches apart. In pruning I aim to keep the trees headed back to force new wood and prevent them getting too high.—J. M. Metcalf, Grimsby, Ont.

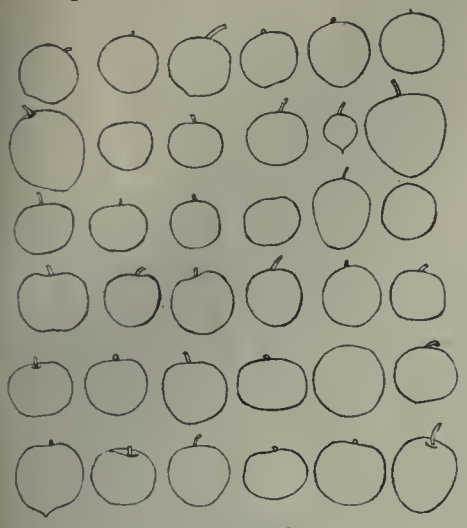
View of Dwarf Pear Orchard this Spring
corner of orchard illustrated on page 137.

Improving and Originating Varieties of Apples

B. S. Pickett, Champaign, Illinois

(Continued from last issue)

WITH his ideal definitely in mind, the breeder studies the varieties most nearly approaching it, either in one particular or in a number for with



Types of Seedlings

All from one variety, showing about the normal variations of apple seedlings.

these he will work. Certain varieties will present highly productive qualities, and possibly poor dessert quality. Other varieties will present the opposite alternative; while still others will exhibit intermediate characters. A very much diversified classification might be made, but for the sake of simplicity let us place the available sorts into three classes: number 1 to contain the most productive sorts, regardless of quality; number 2, the standard commercial sorts; and number 3, the varieties of high quality, regardless of productiveness. If the following apples are available, Baldwin, Ben Davis, Duchess, Fameuse, Tolman Sweet, Jonathan, McIntosh, Northern Spy, Oesopus Spitzenburg, Gravenstein, Stark, Tompkins, King and Wallbridge, the classification is about as follows:

Class I.	Class II.	Class III.
Baldwin	Baldwin	Fameuse
Ben Davis	Ben Davis	Jonathan
Duchess	McIntosh	McIntosh
Fameuse	Northern Spy	Northern Spy
Stark	Spitzenburg	Spitzenburg
Wallbridge	Tompkins King	Tompkins King
Tolman Sweet	Fameuse	Gravenstein

From this list should be discarded those varieties whose season, color, or size seems unfavorable for use in his experiment. Duchess, Fameuse, Wallbridge and Tolman Sweet would be eliminated from class 1; McIntosh and Fameuse possibly from 2; though their high color and flavors might suggest a trial in spite of their early season; and for the same reason, McIntosh, Fameuse, and Gravenstein might be retained or discarded from class 3. With a comparatively few varieties before him, the breeder studies the apple race or group to which each belongs. Baldwins and Ben Davis appear in both classes 1 and 2. Both are varieties of wide distribution and adaptation. Each is weak principally in point of dessert quality; and, therefore, these two varieties would immediately suggest themselves for use in the experiment. Flavor and quality represent physiological units not to be obtained readily by selection (though, once obtained, they may be intensified by selection); hence, the breeder must rely on crossing or upon the appearance of a "mutation" to obtain the desired combination of flavor and other attributes. With what varieties shall the crosses be made upon Ben Davis and Baldwin? Ben Davis impresses its character very strongly upon its seedlings, as seen in Gano and Black Ben Davis (Ragan's Red), so that if favorable results are to follow its use, wide crosses, i.e., with distinctly unrelated varieties, should be made. Baldwin, on the contrary, belongs to a group of highly flavored sorts, the Spitzenburg group, including both Jonathan and Spitzenburg; hence, crosses with its near relatives would be advisable. Of course, it would be advisable to make other crosses as well, but the practice of both animal and plant breeders points to the advisability of such crosses as those mentioned. In the case of Northern Spy, another variety with which work would certainly be done, considerable scope for improvement is offered by means of bud-selection, since Northern Spy is quite variable and since selection would be in the direction of precociousness in bearing, uniformity in size, and better keeping quality, all of which characters are much more easily augmented by selection than would be such a character as flavor. Northern Spy is, moreover, prepotent, having impressed its character on various crosses, Ontario, Pewaukee, and so on and is recognized as a valuable parent for crossing. Thus through the list the breeder goes, studying each variety and planning his crosses; and some such plan as the following would be decided upon, the crosses being made reciprocally:

Ben Davis x Northern Spy
Ben Davis x Jonathan* (using imported pollen)
Ben Davis x Spitzenburg
Baldwin x Northern Spy
Baldwin x Jonathan* (using imported pollen)
Baldwin x Spitzenburg
Jonathan* x Spitzenburg
Spitzenburg x McIntosh
Baldwin x McIntosh

*Jonathan is recommended in spite of the fact that it is not an Ontario apple, because of its close relation to Baldwin and Spitzenburg.

Plowing-in Mammoth Clover with a Sulky Gang Plow

Illustration from Hillcrest Orchards, Kentville, N.S.

Having secured his crosses and propagated his seedlings, the process of elimination begins. In accordance with the score card, the seedlings are examin-

ed from time to time, and the weaker ones are thrown out; and, finally, on fruiting, those which stand the tests of growth and health are compared as to performance.

The production of an improved new variety may be far from complete at the end of the first cross. In studies of the behavior of crosses, it has been observed that the offspring of the crosses frequently show a wider range of variation than do the crosses. The breeder must, therefore, make provision for testing the offspring of his crosses, as well as the original crosses themselves. To hasten the fruiting of his crosses, he will resort to grafting on older trees, using scions from each of his seedling crosses, and planting seed from this generation, *fertilized by pollen from the same cross*, as soon as blossoms can be obtained.

Moreover, it may be necessary to intensify the characters of a cross by further crosses. For example, a variant appears among the Ben Davis x Spitzenburg crosses essentially Ben Davis in everything save a faint suggestion of Spitzenburg flavor. Such a variant should be crossed again with Spitzenburg; for, according to the laws of hybrids (which apply with equal certainty to all pure characters in all crosses) somewhere among the offspring must appear some individuals possessing the desired flavor character in a marked degree. Indeed, were the crosses themselves fertilized among themselves, the intensified flavor "character" would appear somewhere, providing numbers sufficiently large were used; but the probability is greatly increased by using pure Spitzenburg blood in the second cross.

It is impossible to state the number of seedlings that should be grown from each cross. The breeder will be limited by his facilities for testing, rather than by the number of pollinations that can be made. The more seedlings that can be grown, the greater the chances for success. In the instance just given, I believe that 1,000 first generation seedlings should be grown from each cross, and twice as many second generation seedlings, in case the desired variations fail to appear in the initial trial. This makes a total of 9,000 first generation seedlings, and 18,000 second generation seedlings, of which at least one-half should be eliminated within three years of age, and probably two-thirds before bearing age. Planted 10 x 12 feet apart, these would require 12 acres for the testing of the first generation and 24 acres for the testing of the second generation; or. planted 12 x15 feet, would require 18½ acres for the first generation and 37 acres for the second. The writer believes, however, that the former distance is sufficient for testing purposes.

The example given is typical of the methods employed in originating new varieties of orchard fruits. Each case will, however, require its own particular treatment, as regards choice of foundation stock and method of procedure; that is, whether by bud selection, importation of foreign varieties and species, change in environment of the plant, crossing and so forth.

Weeds in Lawns

In many lawns, weeds are persistent nuisances. No matter how careful has been the selection of seed or fertilizers, weeds will make their appearance. Frequent mowings will destroy many young weeds, but too frequent cuttings in dry weather often weakens the grass and sometimes weeds get the upper hand.

In a newly-made lawn, it is necessary to keep a careful watch on the weeds. They should not be allowed to get a start sufficient to make them troublesome. Dandelions, narrow-leaved plantains, docks and that class of weeds can scarcely be gotten rid of except by spudding. These tools can be secured from any seedsman. There also are other excellent tools for ridding lawns of weeds. Among these is the Cleveland Lawn Weeder. With it, one can get at the root of the evil and remove it without disturbing the surrounding sod. It is an inexpensive device and should be in everyone's collection of garden tools.

Weeds are more prevalent in thin lawns than in those that are thick and velvety. By improving the turf, thickening it, most weeds will disappear.

Dendrobium Wardianum

The illustration on this page represents a beautiful specimen of Dendrobium Wardianum Lowii as grown in the greenhouse of Mr. R. B. Angus, of Montreal. The photograph was taken in the third year of flowering.

While this variety of orchid is a free bloomer, as may be seen from the illustration, it has not proved to be a durable one with private gardeners. This may be owing to the flowers being allowed to remain on the plant too long or to the necessity of having to place them, when in flower, in the cool and often draughty conservatories. That they may be grown with much satisfaction when given particular care and attention is evidenced by the success that has been attained by Mr. Wm. J. Wilshire, gardener for Mr. Angus, in the production of the specimen illustrated. It should be an incentive to greater efforts on the part of others who are growing this valuable variety.

A Free Blooming Orchid in a Montreal Greenhouse

Lawn and Garden Hints for June

THE only way to secure satisfactory results in the flower garden is by giving the details careful study. Many pleasing effects may be had by the exercise of forethought. Even tropical

Box of Plants on Lawn

A cheap and effective means of adornment—an ordinary wooden box, painted and filled with plants—a central draceana surrounded by coleus, geraniums, vincas, petunias and nasturtiums.

effects may be had by the judicious selection of plants that are appropriate. One of the best of these is the ricinus or castor oil plant. It can be grown from seed. It has immense palmate foliage of a rich green, shaded with red with a metallic lustre. It grows to be eight or ten feet high, and branches freely. It is excellent for the centre of a circular bed.

The canna is a sub-tropical plant, and may be combined with others to excellent effect. Some varieties are tall growers, while others are dwarf. In addition to its fine foliage, it bears brilliant flowers that give color to the arrangement. For beds of this kind, there are other plants such as palms, screw pines, ficus, caladiums and aspidistras, that can be put out of doors in summer with advantage.

AMONG THE FLOWERS

The best of all the summer flowering bulbs is the gladiolus. It is a flower anybody can grow, and it is lovely enough to suit the most exacting. You can have it in the most delicate colors if your taste runs in that direction, and you can have it in colors of much brilliancy if such are your preference. For cultural directions, read the article by Mr. Groff that appears in another column.

In the annual flower beds, be sure to have plenty of mignonette. It is one of the most useful flowers for cutting. Among other common annuals that should be in every garden are marigold, petunias, eschscholtzia, portulaca, calliopsis, salpiglossis, balsam, zinnias and poppies.

One of the best general purpose hardy border plants is the perennial phlox. It gives an almost solid mass of color for many weeks. Give it a good, rich soil, keep the grass and weeds away from it, and that is all the attention that it needs.

Have plenty of hollyhocks but do not plant them singly. They are more effective when grouped. It is a good plan to sow a packet of hollyhock seed each summer. By doing this, you will have a fresh lot of young plants for each season's flowering. It is from young plants that you must expect your finest flowers.

During the summer, the size of pansy flowers can be kept up by watering two or three times a week with water in which cow manure has been soaked. You can hardly give them too much. If it gets on the leaves, rinse them with clean water. Pick off the faded blossoms.

If you want to get extra large flowers of sweet peas for exhibition or otherwise, disbud and only let the number of buds that you require come to maturity.

Fairies in Flowerland

Twin granddaughters of Mr. Amos Hill, Great Village, Nova Scotia, taken in a garden of sweet peas. Photograph furnished by Mr. J. W. Nairn, Truro.

Do not plant dahlias or cannas until all danger of frost is past. Many amateurs plant dahlias too early. Those whose growth has been retarded will produce the finest flowers. Dahlias do not bloom so well during the heat of summer as they do in fall when the nights are cool.

Thinning, weeding, cultivating and watering are the most important chores this month. Do not neglect them if you desire the best results.

Prune all the flowering shrubs that bloom before the leaves appear, as these will produce their flowers next spring on this season's growth.

WITH THE FRUITS

If you want to grow larger and better fruit on your trees than you have done in the past, thin the fruit on the limbs this month. Read the article on this subject that appears on another page of this issue.

When picking strawberries, keep the newly-picked berries out of the sun. The best way to pick the berries is to grasp the stem and remove about one-half an inch of it with the fruit. Do not separate the berry from the hull until about to be used on the table. The new strawberry bed should be cultivated continually. Remove all the blossoms and allow the strength of the plant to go towards producing a strong crown in the old plant and an abundance of runners. These pointers are for the matted row system. Larger berries, but not so many of them, may be produced by growing the strawberries on the hill system. In this case, all runners should be removed. If a strawberry plant collapses, dig a hill and kill the white grubs.

Fruit trees and bushes should be sprayed if clean fruit is the object. If the home orchard is large enough, the purchase of a knapsack sprayer or even a barrel pump will be a profitable investment.

Gum or sawdust near the base of peach or plum trees indicates the presence of borers. Dig them out or they will kill the tree.

THE VEGETABLE GARDEN

Commence to cultivate and hoe as soon as the young plants appear. Do not wait until the weeds get a start. By stirring the soil early, many weed seeds that have sprouted and not yet appeared above the surface, will be killed.

The best time to water the vegetable garden is in the evening, but water it any time rather than allow it to suffer from drought.

Sweet corn can be sown at any time during the month. Late cabbage and cauliflower oftentimes can be planted between the rows of early potatoes before the latter are done. Try some Savoy cabbage; they are excellent and delicious for table use.

When danger of frost is about past, sow seed of such tender vegetables as cucumber, pumpkin, squash and melon.

To secure early tomatoes, train them to a trellis or to stakes. Pinch off all the side shoots and allow the strength to go to one stalk.

Hand weeding is necessary in the onion patch. The young plants are easily choked by weeds.

Thin the beets, but do not destroy all the superfluous little plants. They may be used on the table as greens, or they may be transplanted after cutting off most of the leafage. Water them until they become established.

The squash bug is troublesome. Its depredations may be lessened by means of a decoy. Lay small pieces of boards near the squash plants and kill the bugs under them every morning. Squash and melon plants may also be protected from bugs by covering with cheese cloth.

Besides common vegetables there are many that are unusual but worth growing. Why not try something new? Swiss chard, a type of beet, is excellent as a boiled green. Sow the seeds as early as possible. When the plants are up, they may be thinned from time to time, and the thinnings boiled for table use, or they may be transplanted. There is no fleshy root as in the case of common beets. Other vegetables that are worth trying are, kale, Brussells sprouts, globe artichoke, cardoon and Chinese cabbage.

Large Mammoth Squash Growing Abundantly in an Out-of-the-way Place

Twin Backyards that Betray Respectively Crude and Refined Ideals

These home gardens, side by side, are object lessons. One, unkempt and uncared for, is a horrible example of a home unimproved; the other, clean and made ready for flowers and vegetables, is a model for others similarly situated to follow. Note also the backyards illustrated on pages 143 and 145.

Color Schemes for Formal Gardens

Wm. J. Wilshire, Montreal

THE old-time formal garden with its terraces, vases and statues, severely trimmed hedges and trees, and its walks, borders and flower beds, bordered with narrow strips of grass, tiles

A Corner Garden

Planted for beauty and a practical purpose. It prevents short cuts that mar so many lawns near busy city streets. Besides the type illustrated—a hedge bordered with flowers—rockeries are as efficient and as ornamental.

or box-edging, is practically unknown in Canada. The "formal garden," as we know it, is usually a lawn or garden containing a number of flower beds and borders. Sometimes it is laid out in the form of a more or less pleasing design, but often no attempt at artistic arrangement is made, the garden or lawn being crowded with flower beds of every size and description, lack of space alone being the limit to the variety of designs displayed. This is an all too-common practice and one that cannot be too severely condemned. If the arrangement is bad, the design poor, or unsuitable, or the beds are out of proportion either in size or number, the most skilful planting will never entirely hide the defect.

Color schemes for separate beds, especially if they are some distance from each other, are easier to carry out than when they are grouped together in the form of a design. In the former case, no account has to be taken of the effect the colors used will have on those in adjoining beds. In either case, harmony of color should be made the first consideration. This may be produced by forming sharp but pleasing contrasts, or by a combination of different shades of one color. To give an extended list of combinations suitable for single beds would only lead to confusion; therefore, a few examples only will be given. Those which follow have all been seen in different plans in this locality, some being particularly effective:

1. Iresine Herbstii, purple-red and Abutilon Savitzii, planted alternately; border, alyssum, "Little Gem."
2. Geranium, "Flower of Spring," silver leaf, coleus, "Glory of Autumn," and dwarf silver leaf geranium; border, Alternanthera amœna.
3. Abutilon Savitzii, white and heliotrope "Montreal Bedder," purple; border, alyssum, "Little Gem."
4. Geranium, "J Vind," rose-pink, Centaurea gymnocarpa, white, and Begonia Erfordii, carmine; border, Dactylis variegata, white striped.
5. Acalypha Macafuena, bronze-green and red, and Abutilon Savitzii.
6. Canna, "Alphonse Bouvier," crimson, planted sparingly on a groundwork of Abutilon "Souvenir de Bonn," green and white; border, Coleus Verschaffeltii, maroon.
7. Dark blue ageratum, Centaurea candidissima, white and light blue lobelia; border, alyssum, "Little Gem."
8. Canna "J. Vaughan," yellow, planted with Eulalia zebrina; border, Pennisetum Ruppellii, ornamental grass.
9. Canna "Black Beauty," dark bronze, Coleus Verschaffeltii and bronze-leaf geranium; border, yellow alternanthera.
10. Heliotrope, "Montreal Bedder," purple and celosia, "Sutton's Yellow Gem"; border, alyssum, "Little Gem."

Vinca major variegata makes a fine ground-work for a bed in any position. It is very effective when planted among upright growing subjects.

Mass planting, that is, each bed in a separate color, is probably the best for large designs. Almost all the ordinary bedding plants possessing one dominant shade of color can be used, care being taken to avoid harsh contrasts between adjoining beds. White can be used with any color, and is often valuable for separating colors which would do violence to each other if planted side by side.

For smaller designs, different shades of pink, yellow to bronze, light to dark red or maroon, can be made to give a fine effect; or, if desired, white may be used in combination with either. Most of the plants mentioned in this article having either white flowers or foliage, would be found suitable. It is impossible to say exactly what varieties should be used, or how the different shades should be combined; no particular form of design being under consideration.

For pink, geraniums present a number of fine shades, and can be used with Begonia Erfordii, the pale and bright pink varieties of B. Semperflorens and the carmine-tipped Alternanthera versicolor. For yellow and bronze, bronze-leaf Cannas, yellow-flowered cannas, Acalypha macrophylla, coleus, bronze and yellow-leaved geraniums, Antheriicum picturatum, and alternanthera in two or three shades. For red and maroon, cannas, coleus, geraniums, achyranthus, begonias "Vernon" and "Duke Zephlin," and alternanthera.

Narrow borders will of necessity have to be planted in the "ribbon" line style; but, for wide borders, a pleasant change from that method may be made by planting the different varieties in groups, irregular in size and shape, merging the colors one into the other, or arranging them to form agreeable contrasts. For borders in shady positions, nothing can beat fuchsias and tuberous begonias, planted on a ground-work of Anthericum variegatum bordered with Dactylis variegata. Carpet bedding, once the rage, is rapidly going the way of all fads.

Much Pleasure and Enjoyment can be had in a Backyard like this

Probably few regret it; for it is, without doubt, the most troublesome and unnatural style of planting. For this style of bedding, a combination of delicate shades of color would be unsuitable. The lines of color have to be somewhat sharply contrasted; otherwise, any designs the beds might contain would be too indistinct to be effective. Almost any low-growing plants that will stand being pinched or sheared can be used for this class of work, among which are the following: Coleus, achyranthus, santolina, alternanthera, pyrethrum, echeveria, lobelia, mesembryanthemum, alyssum and others.

It is not necessary to confine oneself to the above list, many other plants and many other ways can be found to make summer bedding effective. No arbitrary rule exists as to what should, or should not, be planted, or how the arranging should be done. Much depends upon the taste and skill of the operator. Common plants, in the hands of the skilful planter, are often made to produce finer effects than the choicest material in the hands of the unskilful.

Mowing the Lawn

It is not well to mow a newly-made lawn until the grass is three or four inches in height. Give the grass a chance. Do not cut too closely at first. When mowing is commenced, however, it is necessary to repeat it about twice a week. Frequent mowings increase the body of the sward. In dry seasons, it may not be necessary to mow so often.

Do not mow a well-established lawn too closely. There must be enough grass blade left at the root of the plant to make a good showing of green if one expects the turf to look well. Cutting close gives the lawn a brown look because the dead leaves usually found at crown of plant have a chance to show through the green leaves that are left.

To maintain an even surface of turf, the grass must be cut with an up-to-date lawn mower. There are many of these on the market. It is well to select one that will do the work easily and well. Every person that has a lawn should have a hand lawn mower. They are inexpensive and will last for many years. For parks, public squares, large estates and other places where the lawn is of large area, it is necessary to use a horse or power lawn mower. These do the work much more rapidly than the hand mower and are cheap in the end.

There is a difference of opinion as to whether or not the trimmings or clippings of the grass should be removed when cut. Some gardeners advise leaving them to decay and, as they say, to enrich the surface of the soil. It would seem, however, that actual experience discredits this theory and shows that soon such a thick mat of decayed leaves is left on the roots of the grass that it molds, smothers the grass and even kills it. It is said that many dead patches seen on lawns are the result of leaving the clippings thereon. We would suggest that amateurs whose lawns are small, rake off most of the clippings. It is easier, of course, to leave them where they lie, but it is not in the best interests of the turf to allow the clippings of all summer to remain there. This is a point of general interest. Letters telling the experience of our readers are solicited and will be published for the benefit of fellow-gardeners.

Growing Gourds

Gourds are excellent annual climbers. They produce blossoms profusely and the curious fruits hanging in clusters add novelty and attractiveness to the garden. They are grown somewhat in the same manner as squashes and cucumbers. As they are tender, they should not be planted until all danger of frost is passed. A better way is to start the seed in the house in early spring, usually March, and transfer the plants to the open when the right time comes. Good results may be obtained, however, by planting the seed outside. Give them a location that is fully exposed to sun.

Gourds must be trained on some support, such as fences, trellises, arbors, and summer houses. A rustic effect may be produced by allowing the gourds to run over a dead tree. Go to the woods or fields and find a small tree or old top. Nail on this in irregular fashion any old sticks or limbs that are available. Unless you intend to give the larger varieties particular attention in the way of support when they attain their size, it is advisable to use the smaller sorts so that they will not be damaged in case of a windstorm.

Try some gourds this year, and, to make the experiment doubly interesting, engrave a name or motto on the fruit when young. This may be done with a knife or any instrument. When a gourd is once scratched, the blemish will always remain, no matter how small it may be. On the other hand, if the puncture is large, the fruit will rot. Care should be taken to see that the markings are not made too deeply.

Statice—Sea Lavender.—The statices are great favorites of mine. They are among the most beautiful of our perennials, very hardy, and are not known as well as they ought to be. They grow from two to three feet high. There is nothing better for cutting, and they keep long after being dried. They are very attractive in the border, flowering during August, September and October, lavender blue in color. Variety latifolia is the best for general culture.—Roderick Cameron, Niagara Falls South.

The Mixed Flower Border

Wm. Hunt, Ontario Agricultural College, Guelph.

For practical purposes, the plants for a mixed flower border could be divided into two classes, permanent and temporary. The former could consist of perennial climbers for covering the fence, if any, and all kinds of hardy perennial border plants such as delphiniums, pæony, iris, and other similar plants. Hardy border lilies, lily of the valley, as well as tulips and narcissi, and other spring flowering bulbs, could be planted for permanent occupation in different positions, best suited to their height, habit and color effect. A few carefully selected shrubs or a few of the commoner hardy roses could be made very effective in large borders. Annual climbers and border plants could be sown in May to fill in the spaces between the more permanent plants just mentioned.

Plant for effectiveness, so as to avoid a too monotonous or set appearance of the general contour of the border. Planting for color effect may be done by grouping varieties of plants that harmonize. Avoid any stiffness or formality in the general effect. It is not advisable always to copy the plan oftentimes followed of planting only the tall-growing plants at the back of the border, medium height plants in the centre, and the quite dwarf plants only at the front edge of the border. This method gives the border the appearance of being stiff, formal and artificial. It is just as necessary to have relief in form and outline as it is to have relief and variety in color effect. In planting the mixed border, try and avoid anything approaching formality or too much regularity from any point of view.

To make the mixed border effective from early spring until late autumn, select plants that will cover the season with successive bloom. Seeds of perennials can be sown in a nursery bed out of doors, from May to August, for next season and future flowering. These could be planted in the border the following spring. Spring flowering bulbs should be planted in October. Pæony roots and dielytra (bleeding heart), iris and a few other herbaceous perennials could be planted or divided and transplanted in September, or early in October. Most of the border perennials, however, such as gaillardia, phlox and so forth, are best transplanted about the end of April or early in May. Dormant roots of dahlias can be planted the end of May, Canna roots early in June. Gladioli corms can be planted any time during May. Seeds of annuals can be sown as soon as the ground is in good condition in spring, about the first week in May. A border was published last month.

Grow Salad Crops at Home

EVERY person who has a garden should plan to grow a succession of salad plants. They are easily grown and will succeed under most adverse circumstances. Much of the crispness and tenderness of salad plants bought from the grocer are lost by the necessary handling from the producer to the consumer. To have them fresh every day and in variety throughout the season, the amateur should set apart a place for them in the home garden.

A Simple and Effective Summer Playground for Old and Young

LETTUCE

The salad plant that is grown the most extensively in the home garden or for market is lettuce. It has one serious drawback, however, and that is it cannot stand the hot summer sun. This does not prevent its culture during the summer, but necessitates a little extra trouble to afford it a screen to ward off the sun's rays. These screens may be made of laths or cheese cloth, tacked on frames and placed a foot or so above the plants.

Early spring lettuce may be grown in hotbeds and cold frames. Not much bottom heating is required. The seed is sown in March. Some of the plants may be allowed to mature in the frame and others are transplanted to the open.

As soon as the soil is fit to work in the garden in spring, the seed may be sown out of doors. Seed thinly in rows 10 or 12 inches apart, and, for head lettuce, thin the plants to stand 10 inches in the rows. The thinnings may be transplanted into new beds. For a succession, however, it is better to sow seed every two weeks. There are many good varieties, among which are Big Boston and Hanson. For a loose leaf or cutting lettuce, probably Black Seeded Simpson is the best.

Cos or celery lettuce exceeds all other lettuce in quality, having a crispness, tenderness and flavor particularly its own. The long and narrow leaves require to be tied, when they soon form solid heads and quickly bleach to snowy whiteness. They become as stiff, crisp and as sweet as celery stocks, and are delicious when eaten in the same manner or prepared for salad. Plant cos lettuce in rows 10 or 12 inches apart, and thin to six inches in the row.

The Beautiful Home of a Horticultural Enthusiast

The residence of Dr. Dryden, Guelph, Ontario. Note particularly the effect produced by window boxes and read the short article on page 147.

A salad plant that is at its best during the summer, when good lettuce is scarce, is endive. For this reason, you should cultivate a taste for it, if you have not already done so. It is a tender and delicious salad. Sow in June and have a succession until late fall by sowing a new row every two weeks. The leaves will have to be blanched before used, either by tying together with some soft material or by standing boards on each side of the row, allowing the tops of the boards to meet over the centre. The rows should be one and one-half feet apart, and the plants should stand about 10 inches apart in the rows.

CORN SALAD

Corn salad, or fetticus, is one of the earliest spring salad vegetables coming into condition to use with spinach. Sown in fall and protected during the winter, it starts into rapid growth when the cover is removed in March or April. The seed may be sown also in spring and the plants will be fit to use in six or eight weeks. One packet of seed will suffice for a small family. Sow in rows a foot apart.

CRESS

The curled garden cress is a useful plant, as its leaves may be used for garnishing as well as for salads. It will grow in any good soil. Sow early in spring and a crop may be cut in four or five weeks. A succession of sowings must be made as it runs quickly to seed. Sow thickly in drills about a foot apart.

Water cress grows rapidly on the edges of springs, brooks, open drains or ponds. A few plants for private use may be grown in a frame, provided a

retentive soil is used and attention given to watering the bed often. Water cress is propagated by seed or from pieces of the stem used as cuttings. When once established, it will take care of itself year by year.

CULTIVATED DANDELION

The cultivated dandelion also may be used for salads. It is quite different in quality and appearance from the ordinary weed. The plants attain a larger size, and the leaves are much more tender. Seed may be selected from the best field growing plants, but it is better to buy the French seed of the seedsmen. Sow in spring in well-manured soil, either in hills or in drills one foot apart. The first cutting of leaves will be had in the fall. The leaves should be blanched to improve their delicacy.

Rose Pests

With the increasing heat of summer, insect pests are sure to make their appearance on the rose bushes. It is wise to adopt preventive measures rather than to rely on an attempt to cure when the insect appears. Too often the application of remedies and preventive measures for the extermination of insect and fungous pests is left until the plants have become too badly infested that they are hopelessly spoiled for floral or decorative purposes for the rest of the season.

It is a wise course to give rose bushes a sprinkling of hellebore powder as soon as the foliage is partly developed and before the flower buds have shown themselves prominently. By doing this and repeating the operation about once a week, until the flowers commence to open, the foliage as well as the flowering buds can be saved from disfiguration and partial ruin, particularly from the rose slug. The best time to apply the hellebore is early in the morning, whilst the foliage is damp with dew.

Another insect that is troublesome throughout the whole season is the rose thrip. It secretes itself on the under side of the leaves, and oftentimes is not detected until the foliage has become bleached and whitened by its destructive attacks. A close inspection of the foliage will detect them. The bushes should be treated early in the season. An application of tobacco in some form is the best and most effective preventive.

Another enemy to the successful culture of the rose is the red spider. Climbing roses are more liable to attacks than are bush roses. The red spider delights in a dry atmosphere. Roses that are trained close to a wall or fence offer splendid inducements for its ravages. One of the first indications of the presence of this pest is an unhealthy, whitish appearance of the leaves and finally the constant falling of the dried, half-devoured leaves, unless they are stopped before they have reached this stage. As the red spider cannot exist in a damp atmosphere, constant syringing and sprinkling with cold water is the best preventive.

The aphis or small green fly is also troublesome. Constant syringing or an application of tobacco water usually rids the bushes fairly efficiently of this insect. Remedies for all insect pests should be applied early in the season and before the pests have become uncontrollable.

Culture of Gladioli

H. H. Groff, Simcoe, Ont.

The gladiolus is not exacting in its demands upon the soil. I have grown it on one block of land yearly for over fifteen years, the only fertilizer used being well-rotted stable manure and hard wood ashes applied before plowing in the autumn. No fertilizers are needed on strong new soils as a rule.

Profuse watering at intervals is desirable where local peculiarities of soil and limited rainfall prevail during the season of active plant growth and blooming. A brief period of ripening before the latter season is beneficial, if not too severe, as this hardens the plant tissues and assures flowers and spikes of increased durability and quality. Excessively succulent growth is not beneficial to plant, flower or corm.

For best results, plant in full exposure to the sun, in locations having a free circulation of air, avoid crowding by other plants or overshading by trees, buildings or hedges. Plant from two to four inches deep according to the size of the corms—matured corms never less than four inches—two to four inches apart in double rows, which may be made as close as twelve inches in beds or borders. The greatest satisfaction is secured by growing several thousand in the vegetable garden for daily cutting as the first flowers open. In the next issue of THE CANADIAN HORTICULTURIST will appear an article on how to cut and care for the flowers.

Bedding Plants

When striking and peculiar effects are desired in the flower garden or on the lawn, it is customary to make use of what florists term "bedding plants." This term is used to designate such kind of plants that bloom well when planted out in beds or have striking foliage whose colors take the place of flowers.

The most important bedding plant is the geranium. No other gives such a brilliant show of color throughout the season. To keep a geranium blooming from June until frost, it is necessary only to remove the flowers as they fade, and thereby prevent the formation of seeds The double varieties are the most popular for bedding, as the flowers last longer and give more solid color effect.

Tuberous begonias are excellent bedders. They are rich in color and produce a fine effect. The verbena is one of the best, being a very free and constant bloomer, and having intensely rich and beautiful colors. Other flowering plants that are popular for the purpose are salvias, petunias, fuchsias, asters, cannas, gladioli and Phlox Drummondii.

Among the foliage plants, the most popular is the coleus. By planting it closely together and keeping the plants well cut back, solid effects of color can be obtained. The colors being so varied and distinct, the coleus is much used in carpet bedding, in which a set pattern is worked out. Other plants that bear cutting well, and that are used in the production of pattern effects, are achyranthes and alternanthera. Centuria gymnocarpa has a soft, gray leaf that contrasts well with coleus. Sweet alyssum also may be used for the border.

For most bedding plants, a medium heavy loam is best, as it retains the moisture for a longer time. Before planting, the soil should be dug deeply. It will not need fertilizing if the bed was left in good shape last fall. If tulips or hyacinths were planted, however, the bed will require a heavy coat of well-rotted manure. For putting out the plants, choose a cloudy day if possible. Water them well and shade for a day or two. Stake those that require it. The plants should be tied to the stakes frequently as growth develops.

To Grow Good Poppies

R. B. Whyte, Ottawa

The best soil for poppies is a sandy loam; if good garden soil, it will not require any manuring, but if very poor, spread about two inches of well-rotted stable manure over the surface before digging, and turn it well under, so that none of it will touch the seed. After digging, rake the earth with a sharp rake till it is as smooth and fine as you can make it. Make your bed where it will get the sun all day if possible.

A convenient shape for the seed bed is about two and a half feet wide and 15 feet long. The seed may be planted in rows one foot apart and about four to six inches apart in the row; or it may be scattered over the whole surface, thinning the plants out after they come up, to eight or nine inches apart. As the seed is very small you must be careful not to cover it too deep. A good way is to plant it on the surface, and then draw the rake very lightly over the top so as to stir the soil a little, then pat it firmly with a hoe or piece of board,

so as to bring the earth into close contact with the seed. If planted in rows, your bed will be more easily kept free from weeds, as you can do the work with a hoe, but scattering the seed over the whole surface makes a much more attractive show bed in the garden.

Keep all weeds pulled and stir the earth frequently between the plants to keep it from getting hard. It is not necessary to water, as poppies grow best in hot, dry weather. Do not allow any seed to ripen. Cut off the seed pods every day, as soon as the petals fall off.

Window Boxes

Every home should have one or more window boxes of foliage or flowers. No form of gardening is more appropriate to redeem the barrenness of countless homes in our cities, where there is scarcely a spot of green grass or workable soil on the premises. For such homes, the effectiveness of a simple display of flowers outside the windows cannot be estimated. Not only is it for homes of this kind that window boxes are useful, however, but also for houses everywhere, even those that are surrounded with flowers, plants and trees in great variety.

It is not a difficult or expensive matter to make boxes suitable for growing plants at the window. The simpler and less obstrusive the box, the better. A plain wooden box painted green or a rustic box finished in natural bark is far superior to one made of expensive material with fancy frills, and decorated in all colors of the rainbow. The box should be strongly made, as it is required to support a heavy weight of soil. Supply drainage by holes bored in the bottom, six inches apart, and covered with pieces of broken flower pots.

Secure good soil for the plants to be grown in. A good mixture is one-third ordinary garden soil, one-third well-rotted manure and one-third sand. If ferns and begonias are to be used, omit the manure and use instead well-rotted leaf mould.

Among the plants best for window boxes are geraniums, ageratum, snapdragons, verbenas, vincas, tradescentias, petunias, Phlox Drummondii, Asparagus sprengeri, and for trailing or climbing, nasturtiums, morning glorys and Cobea scandens.

Window boxes must be given plenty of water every day, or they will dry out quickly from exposure to the sun and wind. A little care will be rewarded.

Vines that are bare at the base may be improved by training the new shoots downwards.

Lawns require liberal fertilizing. Many Canadian lawns are underfed.

Cultivating the Market Garden

BY the proper cultivation of the market garden soil, many important things are accomplished. The surface soil is brought into the best condition to resist drought and to conserve moisture in the soil. Plant foods are made more valuable for the use of the growing crop. Weeds are kept out so that they do not rob the crop of moisture and food. Various methods of working the soil are practised. The following are some of them:

CULTIVATING ONIONS

"When onions are about two inches high," wrote Mr. Herbert Hachborn of Echo Place, Ont., "they should be weeded and thinned; that is, if the seed was sown rather thickly. It is my custom to weed onions about twice during the season. I cultivate them with a wheel hoe once a week until they commence to form bulbs. After that, I cultivate with an ordinary hand hoe until time for harvesting."

The planting and cultivating of late cauliflowers as practised by Mr. John N. Watts, of Portsmouth, Ont., is as follows: "I make three sowings of seed, the first about May 15, the second about the 24th, and the third before June 10. I make also three plantings; the first about May 25, the second in June, and the third about the first week of July. The last planting gives the best results. It often happens that a fair crop may be obtained from any one of the three plantings, but in case the first or second should fail the third is almost certain to succeed. Good cultivation and care must be given. When setting out the plants, care should be exercised not to have them too old or woody. Have a fine bed for them to root in. After they have started, a deep hoeing should follow. The soil between the rows should be well cultivated to prevent injury from drought. When the young plants have attained the height of one foot the cabbage worm will put in his appearance. It can be destroyed by the use of one quart of flour in which a teaspoonful of Paris green has been mixed. Dust this on the plants once a week with a box having a perforated lid."

GROWING POTATOES

"The first step in the cultivation of the potato," wrote Mr. H. A. Blunden, of Sarnia, Ont., "is made at the time of planting when a ridge of earth is left over each row. Just as the young plants are making their appearance, the grower must go crossways of the rows with a horse weeder or light harrow and partly knock down the ridge. This operation kills countless numbers of newly-sprouted weeds. In the course of a week afterwards the soil should be cultivated with a horse cultivator. Between the rows, hoeing should be done to make the ridge level with the soil between the rows. Continue to cultivate once a week during the growing season. The first cultivation should be about four inches deep. Cultivate gradually shallower and narrower. At the last cultivation the rows should be moulded."

Cauliflower Growing

Frank F. Reeves, Humber Bay, Ontario

IN sowing cauliflower seed I prefer to use a seed drill, for two reasons: I can get the plants more even, and the seed goes in at a more regular depth. One ounce of seed should sow from 350 to 400 feet of row, and should produce at least 1,500 plants. In growing cauliflower as a second crop sow about May 17 to 24. This gives lots of time to produce stout stocky plants by the time the ground is ready for planting. It is advisable to make two or three sowings so as to have plants the right size when wanted.

A great enemy to young plants is the small fly. The best way to check this pest is to take wood ashes, or air-slaked lime, and dust along the row when the dew is on the plants. Tobacco dust sprinkled on the ground also is a good preventive. No workable plan has been found to combat the root maggot.

One of the most important factors in the cultivation of cauliflower as in all other crops is to find land that is most suitable for them, and then stay with it. A good sandy loam inclined to clay is the ideal spot in which to grow this crop. Being a rank feeder it is necessary that the land be well manured. It is best to grow them after a crop of early radish or spinach. To do this, manure the land well in the fall. About the middle of June, plow in another good coat of manure, let the land lie for a few days, till the weeds begin to show themselves, then start the disc or harrows going. By doing this, weeds do not attain any size, and moisture is conserved.

I plant from July 1 to 15. The ground should be harrowed and boarded as often as possible to get it solid. This causes the plants to take hold far quicker and be able to withstand dry weather and hot winds. Make the rows three feet apart and place the plants two feet apart in the row. If the land is marked both ways, it can all be scuffled. This saves a lot of hand hoeing. If possible

plant on a cloudy day or immediately after a rain. Make the roots firm.

Use the scuffler every week or ten days. After the plants begin to grow nicely, it is wise to use the potato moulders, as it will prevent the plants being blown around by the wind.

When the heads show about two or three inches across, they should be tied to prevent discoloring. Many use bunching string for this. A hoop made of bale wire with a hook at each end is very handy for the purpose.

There is always a lot of plants that will not head-in during the season. These should be stripped of their bottom leaves and planted closely in a roothouse or cool cellar. A large majority will then produce nice cauliflowers.

Transplanting Tomatoes

Angus McInnis, London, Ont

WHEN tomato seedlings are four or five weeks old from the time of sowing the seed, I transplant them about three inches apart each way. Then, when they begin to crowd, I transplant a second time, giving them as much space as I can, from five to eight inches. This is done with early plants but applies equally as well to the later crop, in which case one transplanting is sufficient. Have the bed to which they are transplanted just rich enough to support the plant, as soil that is overly rich induces too fast a growth, making the plants soft and retarding their growth when they are again put into poorer soil.

When planting in the field put lots of manure on the land, especially if it is poor, and spread it as evenly as possible. A good way to accomplish this is to go over it with a disc harrow two or three times, which cuts the manure very fine, then plow the ground. This must be done as early as possible. Then work the land every week with disc or cultivator; no more plowing is needed after the first one. The last cultivating should be done a few days or a week before planting. It is a great benefit to the crop to use 40 or 100 pounds of potash an acre.

Give the plant bed a good watering the day before planting and also on the day you take up the plants. In the field we take a line that reaches from one end to the other. We use a light marker about three feet long with a tooth at each end, marking along the line, while on the opposite side a man digs a hole at the point indicated. We would rather set out the plants before blooming, as we think the digging injures them more then.

At the plant bed there is a man to take up the plants with a good strong trowel. A nice lump of earth is left on each one, and they are placed in flats or boxes that hold about 15 or 20 plants. They are loaded into a waggon, and taken to the field. We drive along the line and a man or boy hands the plants out. We always give a light watering when planting.

The rows are eight feet apart, and three feet from plant to plant. We like this method much better than the square planting, as the same number of plants an acre gives us more room than the latter way. When plants do their best they soon cover the ground, and when it is thickly covered with vines the sun does not shine on it and thus keeps the earth cool in square planting. In planting three by eight feet we can cultivate much longer, keep our ground cleaner, and the sunshine heating the earth causes the tomatoes to ripen much better. We can also do better work in picking the fruit as we do not need to tramp the vines; we have plenty of room to set our baskets or crates between the rows, and if necessary, we can use a stone boat for carrying off the fruit.

Growing Celery

J. Friendship, Kingston, Ont.

The quickest and easiest method for setting is the best. Open trenches with a plow, four feet apart and about 10 inches deep, so that when plants are set they are only a few inches below the level. The celery does much better this way than in deep trenches, and requires less labor. I set the plants close, not more than six inches apart, so that a 30-rod row will hold 1,000 plants. By having everything in readiness a man with two smart boys can set out 25,000 in a short time.

CULTIVATION

Celery must be kept growing steadily to get crisp, tender stalks. It requires more cultivation than other vegetables. The ground must be kept loose and mellow so as to keep up the growth and make it easy hilling up. This should not be done too soon. The plants should be allowed to grow to a fair size before the banking or bleaching is done. At this time the gardener appreciates the value of the fine loose soil on the surface. With it he can do his work well and with pleasure. My plan is to bank as much as I can with the horse. I use a shovel plow, which pushes the loose soil up under the leaves almost as well as a man can do it by hand. Then two men, one on either side, with hoes 20 inches long, or scrapers as they are generally called, shove the soil still more firmly against the plants. They work together so as to keep the plants in place. It is light work and the field can be gone over quickly. Then leave the celery to bleach until danger of frost.

As soon as ground becomes cold, bank up the plants until covered, taking care to keep stalks straight. Before heavy frost, cover with coarse horse manure. In this manner the celery will continue growing and when used will be very crisp and tender, but will not keep long.

For digging the crop, which should be done before a heavy frost, use the horse, and plow a heavy furrow from each side of the row. Have the plow so arranged that it will cut close to plants without injuring the stalks. This leaves them loose enough to pull by hand.

When storing leave the roots on, but remove all old or useless leaves. For long keeping, celery needs close trimming and requires a dry, cool storehouse. Place the plants in an upright position, as close as possible, so that they will continue bleaching without wilting. For immediate use, keep the roots damp, so that the growth will continue, making that nice, crisp celery so much called for during the holiday season. The most profitable kinds to grow are White Plume and Golden Paris, for early; Giant Pascal for medium or early winter; and Rennie's Winter for late keeping.

Vegetable Notes

Cabbage for money must be set out in the field by May 24," said Mr. J. L. Wood, of Toronto. "Before the last transplanting the young plants must be hardened off. Too long in the hotbed makes the plants spindly. Transplant to a cold frame. Harden off gradually or they will blacken and die."

The green fly on lettuce can be kept in check by dusting with tobacco. It should not be put on after the plants begin to close.—H. E. Reid, Toronto.

The earlier the tomato plants are set out the less liable is the fruit to rot, and the more can be harvested before the rot comes.—A. Courtice, Toronto.

To avoid black rot in tomatoes, the plants should be set on poorer soil. Too much manure in the land frequently causes destruction by rot.—Jas. Gibbard, Doncaster, Ont.

If frost nips the tomato plants after I set them out, I get up early in the morning and use the water-can freely to prevent them from being damaged.—H. E. Reid, Toronto.

A western man who has had considerable experience in raising potatoes, says that by planting two or three flax seeds in each hill not a bug appeared in the patch. The flax acted as a repellant. He claims to have tried it several years in succession with always the same results. This is a simple and inexpensive experiment, and is worth trying.

OUR QUESTION AND ANSWER DEPARTMENT

Readers of The Horticulturist are Invited to Submit Questions on any Phase of Horticultural Work

Cost of Wood Ashes

Are wood ashes at 15 cents a bushel, delivered in orchard, expensive?—S.W.C., Sweaburg, Ont.

Wood ashes at 15 cents a bushel, delivered in the orchard, may be very cheap, and, again, may be very expensive. All will depend upon the amount of potash that there is in the ashes. If we were to value what is taken as the average composition, say five per cent. of potash and one and a half per cent. of phosphoric acid, the wood ashes would be worth $6.50 a ton, without allowing anything for the lime. It is, however, impossible to say what amount of potash there is in the ashes. We have analyzed samples containing five per cent., and have also analyzed samples containing one per cent., said to be unleached hardwood ashes. If you know the history of the ashes, whether they have been mixed with earth or hard coal ashes, and that they have not been leached, I think you are safe in paying 15 cents a bushel for them.—Answered by Prof. R. Harcourt, O.A.C., Guelph.

Charcoal as a Fertilizer

What is the value of charcoal as a fertilizer? Is it worth using in large quantities on a small fruit plantation?—Mrs. C. S., Nelson, B.C.

Charcoal acts as an absorbent of gases and is used to sweeten the soil. It is of little value on a fruit plantation unless obtainable at little or no cost and then not unless the soil is acid.

Analysis of Ashes

Please publish the analysis of hard and soft wood ashes and of coal ashes.—E.G.F., Shediac, N.B.

It is impossible to publish an average analysis of soft and hard wood ashes that will truly represent the composition of ashes under all conditions. Different kinds of soft and different kinds of hard wood will differ in their percentage amounts of the constituents. The composition of the wood from which these are taken will vary greatly and will have a marked effect on the composition of the ashes. In general, it may be stated that soft wood ashes are light and, weight for weight, will not contain as much potash as hard wood ashes. On the other hand, it is claimed by many that, bulk for bulk, one will contain about as much potash as the other.

We have made a number of analyses of the ash from different kinds of woods, and do not find any very wide percentage difference, except in the case of elm and black ash, in which the percentage of potash was very high. It would, therefore, be impossible to give any figures that would represent the composition of the two samples. It is also impossible to give the composition of any kind of ashes, because they vary so much that one can never buy ashes that will contain the amount that might be given as average. For instance, in our analysis we found wood of the hard maple to contain 9.3 per cent. of potash. We have also analyzed what have been said to be unleached hardwood ashes, which contained a little over one per cent. of potash.

Hard coal ashes contain very little of anything that is of value. Several samples were analyzed in our laboratory, and these we found to contain little or no potash, but they did contain a small amount, less than two-tenths of a per cent. of phosphoric acid, and a trace of lime and magnesia.—Answered by Prof. R. Harcourt, O.A.C., Guelph.

Pruning Spruce Hedges

When is the best time to prune a Norway spruce hedge that has been allowed to grow in a wild condition? How should it be treated?—J.S., Cayuga, Ont.

The hedge should be pruned this spring, before growth begins. The top may be pruned back severely, but great care should be taken in pruning the sides, as if the trees are cut back to wood without foliage they will not throw out new leaves as deciduous trees do. Prune to bring the hedge into shape, but leave sufficient green foliage all over the sides and top so that there will be enough buds left to furnish new growth all over.—Answered by W. T. Macoun, C.E.F., Ottawa.

Phosphates for Vegetables

Which is the cheapest source of phosphoric acid for growing vegetables, ground bone or superphosphate? How should each of these be applied, at what time, and in what quantities?—R. S., Picton, Ont.

The phosphoric acid in ground bone is in the tri-calcic phosphate form, and is, therefore, insoluble in water; while a large part of that in the superphosphate is soluble in water and consequently immediately available to the plant. The tri-calcic phosphate of the ground bone is, however, quite readily brought into solution through the action of the carbonic acid in the soil, but it is not so available as the superphosphate. The ground bone contains about 14 per cent. of total phosphoric acid, with 12 to 13 per cent. of available phosphoric acid. The ground bone will sell at about $30 a ton and the superphosphate at $16 to $17 a ton. The cost will depend largely upon the nearness to some source of supply.

Potash substances should be applied on the surface of the ground and harrowed or worked into the top soil. The application had best be made during the time when preparing the ground for seed. The ground bone may be applied at the rate of 100 to 200 pounds an acre, larger quantities would do no harm, and the phosphoric acid would not be leached from the soil. The superphosphate may be applied at the rate of 200 to 300 pounds an acre. Too large quantities of this substance, especially on soils that are rich in organic matter, may be detrimental in that it will tend to make the soil acid. Soils that have been heavily manured, and are therefore rich in organic matter, tend to become sour unless there is abundance of lime. Superphosphate is naturally somewhat acid, and will, therefore, make conditions worse.

On soils that have been heavily manured, I would prefer to recommend the use of ground bone rather than superphosphate. The decaying organic matter will furnish sufficient carbonic acid to bring the phosphoric acid in the ground bone into an available condition. The results may not be quite so prominent immediately after sowing, but I think the best all-round results would be got from the use of the ground bone.—Answered by Prof. R. Harcourt, O.A.C., Guelph.

Pruning Moss Roses

When is the proper time to prune moss roses and how should it be done?—J. R., Hamilton, Ont.

Moss roses may be pruned either in autumn or spring. The weak canes should be removed and those that are left pruned back from one-fourth to one-half.—Answered by W. T. Macoun, C.E.F., Ottawa.

"The Keiffer pear is not in as good demand as it used to be," said Murray Pettit, of Winona, to THE HORTICULTURIST, recently, "and I am therefore grafting Duchess on my Keiffer trees. During the past two years I have grafted 2,000 trees in this way. The Duchess is more free from blight than almost any variety of pear, and it bears regularly and ships well to the old country."

The Canadian Horticulturist

Published by The Horticultural Publishing Company, Limited

The Only Horticultural Magazine in the Dominion

Official Organ of British Columbia, Ontario, Quebec and Prince Edward Island Fruit Growers' Associations and of the Ontario Vegetable Growers' Association

H. Bronson Cowan, Managing Editor and Business Manager
A. B. Cutting, B.S.A., Horticultural Editor
W. G. Rook, Advertising Manager
Garrett Wall, Circulation Manager

GREAT BRITAIN

Frank Fletcher, 135 Henrietta Street, Old Trafford, Manchester, Eng., Advertising and Circulation Manager

1. The Canadian Horticulturist is published on the 25th day of the month preceding date of issue.

2. Subscription Price in Canada and Great Britain 50 cents a year, three years $1.20. For United States and local subscriptions in Toronto, 25c. extra a year is charged for postage. Foreign subscriptions, $1.00 a year, including postage.

3. Remittances should be made by Post Office or Money Express Order, or Registered Letter. Postage Stamps accepted for amounts less than $1.00.

4. Discontinuances—Responsible subscribers will continue to receive The Horticulturist until the publishers are notified by letter to discontinue, when all arrearages must be paid.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising Rates quoted on application. Sworn circulation 6,800. Copy received up to the 18th. Responsible representatives wanted in towns and cities.

7. Articles and Illustrations for publication will be thankfully received by the editor.

Our Protective Policy

We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason to believe that any of our advertisers are unreliable, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant we will expose them through the columns of the paper. Thus, we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefits of this Protective Policy is that you include in all your letters to advertisers the words "I saw your ad. in The Canadian Horticulturist." Complaints should be sent to us as soon as possible after reason for dissatisfaction has been found.

Communications should be addressed:
THE CANADIAN HORTICULTURIST,
506-7-8 Manning Chambers,
TORONTO, CANADA

UNEQUAL COMPETITION

In an address delivered recently before the Canadian Club of Toronto, Prof. W. F. Osborne, of Wesley College, Winnipeg, made some pertinent remarks in regard to the advisability of Canadians supporting their own Canadian papers. Prof. Osborne regretted the tremendous circulation in Canada of United States publications, and said that if the policy of protection has a leg to stand on, there is no better field for its exemplification than this. He claimed that the Government would be upheld in every step it took to discourage the flooding of this country with cheap United States publications, and to encourage the circulation of periodicals animated by the British and Canadian spirit, devoted to the fostering of the British and Canadian consciousness, and offering a fit field for the development of Canadian talent.

We have felt, often, that we would like to draw this matter to the attention of our readers, but being an interested party, we have hesitated to mention it. The ice now having been broken by Professor Osborne, we feel more free to refer to some points that we consider important.

At the time the address in question was delivered the Dominion Postal Department had not announced its intention to make the change in the postal arrangements with the United States by which a large number of United States publications, including the *Garden Magazine*, the *Western Fruit Grower*, *Green's Fruit Grower*, the *Florists' Exchange*, and others, hereafter will have to increase their subscription rates in Canada from twenty-five to one hundred per cent. While we did not raise a finger to induce the Dominion Government to take the stand it has, we recognize that The Canadian Horticulturist will benefit by it greatly, and would like to point out the reason to our readers.

Few of our readers have any conception of how difficult it has been to publish a paper like The Canadian Horticulturist. In Canada the number of people who are interested in fruit and flower growing is so limited, and the advertising field is so small, that it has been impossible to make a success of a paper that was devoted to either fruit or flowers exclusively. It has been for this reason that in The Canadian Horticulturist we have had to cater to both fruit and flower growers. The result has been that we have been unable to give as much space to either fruit or flowers in each issue as we would like. Most of our readers have not understood this. This being the case, we frequently received letters from fruit growers who complained that we should not give so much attention to flowers. Lovers of flowers, on the other hand, contended that their interests were being neglected and that too much prominence was given to matters relating to fruit. Both classes of readers compared The Canadian Horticulturist to such United States publications as *The Garden Magazine* or *The Western Fruit Grower*, and wanted to know why we did not publish as good a paper, or nearly as good, for their purposes, as the papers mentioned. These readers had no conception of the difficulties we were and are laboring under.

In the United States, papers relating to fruit and flowers have an almost unlimited field for both subscriptions and advertisements. Their revenue, therefore, is so great that they are able to expend large sums of money in turning out excellent publications. With these large, well-illustrated papers they have invaded the Canadian field.

In Canada the situation is the very reverse. The number of people interested in fruit growing is small. The three chief fruit centres are in the Annapolis Valley of Nova Scotia, the Niagara District of Ontario, and in British Columbia. They could not well be more widely scattered. None of them are large. Outside the few cities and towns in Ontario there is little opening for a paper relating to flowers. The field for advertisements is equally limited, being confined, largely, to the comparatively few Canadian firms. United States firms, as a rule, refuse to advertise in Canadian papers, claiming that they are unable to do business in Canada on account of the Canadian tariff.

These conditions mean that a Canadian paper like The Canadian Horticulturist, with its circumscribed field, has had to fight for existence against United States publications with their unlimited field. Sometimes the fight has been a trying one. This was the case, particularly, when we found Canadian horticultural societies, that were in receipt of government grants, subscribing for United States papers that in the main gave little or no attention to Canadian conditions, and when we were told by the officers of these societies that our own Canadian paper was no good, or words to that effect. Fortunately, there have been some thirty to thirty-five horticultural societies and fruit growers' associations in Canada that have stood by The Canadian Horticulturist loyally, year after year. We desire to thank these societies heartily for their support. Had it not been for their assistance The Canadian Horticulturist would have given up the ghost long ago, and Canada would have been without a horticultural publication of any kind.

Fortunately, we are beginning to get firmly on our feet. The new postal regulations will benefit us greatly. Soon we hope to be able to give more attention in The Canadian Horticulturist to all branches of horticulture, including fruit, flowers and vegetables. Before very long we purpose issuing special fruit and floral editions. In the meantime we are painfully aware of our shortcomings. We can only hope that our readers will overlook them as far as possible and help us to do better. In conclusion, however, we would like to say that, considering our subscription price and the handicap under which we have been working, we feel that we have been issuing a publication of which Canadians have had, at least, no reason to be ashamed. We intend to do still better in the future. The Canadian Horticulturist is published by Canadians for Canadians. We look for the support of Canadians.

BEAUTIFY THE LANES

Among the most unattractive sights in some of our cities and towns are the lanes. Most of them are private property and, therefore, are not under the control of the civic authorities. They usually present a sorry sight. Some owners who care not about going to the expense of a good garbage container, dump their garbage broadcast as well as their ashes, empty cans, garden refuse, waste paper and so forth. One can imagine the effect of such a lane on the passer-by. It is impossible not to feel sorry for the unfortunate householder who, from the opposite side of the street where the lane ends, has to view it day in and day out. While this state of affairs exists in the lane, the front part of the property, where seen from the house and street, sometimes is kept in apple pie order. This is poor citizenship and does not reflect well.

When in Hamilton recently, it was the fortune of an editorial representative of The Canadian Horticulturist to run across a lane between McNab and Park Streets, south, which was in better condition than any street in the city, so much so that it is used as a short cut by residents of the locality. Upon enquiry, he found that the residents on either side of the lane, some fourteen in number, contribute a small sum each and every year towards having the lane properly looked after and cleaned every week. Besides this general means of improvement, they have had some hard material put on the surface of the ground, which makes it look almost like a sidewalk. If this scheme were carried out in all our cities, as it easily could be, what an education it would be for our young folks and also for the city authorities!

THE LAST CHANCE

A short time ago we informed our readers that we had decided to increase the subscribed stock of The Horticultural Publishing Company, Limited, from $10,000 to $20,000, by issuing 200 shares of new stock, worth $10,000. Our readers were invited to subscribe for this new stock. Since then most of this stock has been subscribed. There remains about only $3,000 of this stock still untaken. We intend to dispose of this stock within the next few weeks.

The new postal regulations, by which most of the United States publications, such as *The Garden Magazine*, *Green's Fruit Grower*, and *The Western Fruit Grower*, which have been our most serious competitors in the past, have been forced already to advance their subscription rates in Canada, will prove of great benefit to The Canadian Horticulturist. The competition of these papers having been eliminated, it means that The Canadian Horticulturist is going to have the Canadian field, for some time

at least, practically all to itself. This will result to the great financial benefit of the publication. The prospects of the Horticultural Publishing Company, Limited, were bright before the new postal regulations took effect. They are doubly bright now. During the past eight months the circulation of THE CANADIAN HORTICULTURIST has increased from 4,000 to 7,000 an issue, or practically doubled. If any of our readers would like to subscribe for some of the $3,000 in stock still unsold, they are invited to write us immediately for a prospectus giving full particulars. This will be the last opportunity our readers will have of obtaining stock in this company.

THE CANADIAN HORTICULTURIST was informed just previous to going to press that Mr. H. S. Peart, B.S.A., of the Ontario Agricultural College, Guelph, has been appointed to the directorship of the new experimental fruit station at Jordan Harbor, Ont. While we are unable to have the information confirmed, we have reason to believe that it is authentic.

High Prices for Apples

The largest organization of fruit growers in Ontario for commercial purposes is the Georgian Bay Fruit Growers', Limited. There are about 400 members and this is expected to be increased to 1,000 in the near future. The orchards of the members range in size from two to 40 acres. The association has established a brand that is unquestioned. The organization is on the stock company plan. During the past winter, prices received for the apples of the association have been excellent. The following is the returns of one shipment made at a time when some shippers were getting returns scarcely sufficient to pay freight and other expenses:

THOMSON & MATHIESON, GLASGOW.

(*A. S. Chapin, Toronto Representative*)

April 27, 1907—Sold by auction 337 barrels Georgian Bay apples ex S.S. *Cassandra*.

No. 1. Ben Davis,	..135	26	at 20/
		107	" 19/
	slack.	2	" 14/
		135	
No. 2. Ben Davis.	..123	41	at 17/
		15	" 16/6
		65	" 16/3
	slack.	2	" 11/
		123	
No. 1. N. Spys.	37	2	at 32/
		14	" 30/
	SS..	4	" 29/
	SS..	15	" 28/
	slack..	1	" 25/
	slack..	1	" 15/6
		37	
No. 2. N. Spys.	36	28	at 20/
	SS..	5	" 19/6
	slack..	3	" 18/
		36	
No. 1. Baldwin	1	1	at 25/
No. 2 Baldwin	1	1	" 18/
No. 1. Mann	1	1	" 26/
No. 2. G. Russet	1	1	" 20/
No. 2 Mixed	2...slack..	1	" 16/
	slack..	1	" 13/
	337	2	

Information Needed

Ed. THE CANADIAN HORTICULTURIST: THE CANADIAN HORTICULTURIST is strongly advocating the spraying of trees and bushes and rightly so. Permit me to suggest that our government might well afford to spend some money in advising the practice through the daily and semi-weekly newspapers. There are hundreds of farmers and others interested who do not take any horticultural paper and are not awake to the necessity of fighting the pests of the orchard.

I would suggest also that the San Jose Scale and other pests be described more often so that they may be recognized on appearance. While the experimental farm issues bulletins on this subject that are all right, inquiry will show that there is still a great amount of ignorance on this matter. It might be largely overcome by educating the fruit growing public by means of a generous and intelligent use of the press.—F. Williams, Ottawa.

One of Our Friends

An old and valued subscriber to THE CANADIAN HORTICULTURIST is Mr. Chris. Firth, of Durham, Ont. He came to Canada in 1872, and settled in Hagersville, Ont. For five years he remained there, and during that time was a member of the Ontario Fruit Growers' Association. Then he moved to Durham and

Mr. Chris. Firth

for a few years did not keep in touch with the association. In about 1883, Mr. Firth again joined the association, and subscribed to THE CANADIAN HORTICULTURIST. Since then, he has been a constant reader and friend of the publication. After a quarter of a century's connection with the Ontario Fruit Growers' Association and THE CANADIAN HORTICULTURIST, Mr. Firth writes:

"Only those of us who have been connected with the association and subscribers to THE CANADIAN HORTICULTURIST for a number of years, can understand and appreciate the great improvement that has been made in the publication during the past couple of years. It has advanced rapidly and now may be ranked as one of the leading, if not *the* leading, horticultural journal on the continent."

Commendable Enterprise.—A Canadian firm that is making much progress is that of Pilkington Bros. They have imported large quantities of glass for the trade and are now making delivery. Since the first of this year, they have taken orders for some 150,000 sq. ft. of glass for florists in Canada. For vegetable men orders to the extent of about 20,000 square feet have been received. This year Pilkington Bros.' sales of glass will easily total over 200,000 sq. ft. for greenhouses. This is evidence of enterprise on the part of the firm and of high quality in the commodity that they handle.

Selling Strawberries

H. W. Dawson, Toronto, Ont.

The strawberry grower who puts up his berries with honesty and care always does better by shipping on commission to some good commission house than by selling at home or delivering at any particular point. We have several large shippers who have given us their entire output for three years past, and in talking to two of them this week about selling their output this year at a stated price, they refused. "Our results the last two years have been so good," they said, "that we will not sell, but will take our chances on the market by sending them on commission."

The principal thing is to get the goods to market fresh and in an attractive package, something that is neat and clean, and to have the baskets well filled. Many shippers have the faculty of only filling their baskets about two-thirds full and then they complain if they get a much less price than their neighbors, when in reality they are getting full value. I know of shippers who are neighbors getting varying prices for their berries. One in particular has for the last three years averaged one cent a quart more than any of his neighbors. This man gives attention to small things. Others should follow his example.

Pointers on Spraying

The Nebraska Agricultural Experiment Station has just issued Bulletin No. 98, entitled "Spraying Demonstrations in Nebraska Apple Orchards." The bulletin gives the results secured from the spraying demonstrations carried on last year in six counties of southeastern Nebraska by the Nebraska Experiment Station and the U.S. Department of Agriculture. The cost of spraying and the value of sprayed and unsprayed fruit are reported in detail.

The bulletin gives the following recommendations for this year's spraying based on the results secured last year:

(1) Spray with Bordeaux mixture after the cluster buds open, but before the individual flower buds open.

(2) Spray with Bordeaux and some poison, such as arsenate of lead, Paris green, etc., as soon as possible after the blossoms fall, and at any rate before the calyx lobes of the apple close.

(3) Spray with Bordeaux and poison three or four weeks after the flowers fall.

(4) Spray with arsenate of lead about July 20.

(5) Spray with arsenate of lead about August 10.

Use Paris green at the rate of one-fourth to one-third pound per barrel of Bordeaux. Use arsenate of lead at the rate of two pounds per barrel of Bordeaux or water.

Make Bordeaux as follows:

Bluestone	4 pounds
Quicklime	6 pounds
Water	40 gallons

Slake the lime, dissolve the bluestone, dilute each with half the required quantity of water, and mix thoroughly.

Use good nozzles and maintain a high pressure as uniformly as possible in order to distribute the liquid in a mist-like spray. Take care to reach all parts of the trees and to avoid drenching any part. Careless spraying should not be tolerated.—R. A. Emerson, Nebraska Experiment Station.

In the horticultural kingdom the Ben Davis apple stands only for the baldest commercialism. The sole claim that can rightfully be made for it is that it is a good seller. It flaunts its ruddy inferiority to attract the eye of the injudicious and ignorant. Almost as well might basswood be used for pies as the Ben Davis apple.—The New York *Sun*

Hardy Trees and Shrubs

C. S. Harrison, York, Nebraska

THERE is often a misconception regarding trees, shrubs and plants. It is thought that even a hardy tree grown 1,000 miles south of its habitat becomes tender and cannot stand up with the same tree as grown at its own home. This is a mistake. According to Professor Hansen, it takes a tree over 1,000 years to materially change its structure and nature.

Take the cherry for instance. In the main its northern limit seems to be near St. Paul; but I found over 30 years ago that cherry trees raised in Alabama were much better than those raised in Iowa. And why? Because those raised in the south were absolutely hardy, because well ripened in bud and limb, while those grown in the north, on account of severe weather, were often injured, having the black heart. These results were obtained by actual test of trees growing side by side. I showed our nurserymen the difference, and now most of the cherry trees used in Nebraska are grown in Alabama for the reason that they are absolutely sound in every bud and twig when planted.

It is just so with apples. A tree with a hardy constitution, like the Duchess, is just as hardy grown in the gulf states as in the Dakotas, and perhaps more so, for by no possibility could the southern tree be injured by cold weather, and it might be in the north.

WHERE THE TROUBLE COMES IN

A man in Manitoba reads about the hardiness of red cedar. He gets a lot of price lists. He finds that he can get cheaper ones in southern Illinois. He thinks that red cedar is red cedar anyway. Now those grown in southern Illinois are worthless in Nebraska and would be worse than useless in Manitoba. Even the famous platte cedar of Nebraska could not thrive in Manitoba, for it is not hardy in North Dakota. And if red cedar is wanted for Winnipeg they must be taken from the farthest north where they grow. Now, if trees were grown in southern Illinois from North Dakota seed, and shipped back there again they would be just as hardy as if grown at home.

People hear that the box elder is hardy (this is called the Manitoba maple). A man sends to a Nebraska nursery for a lot of seedlings because he can get them cheap, and they are tender. He loses the whole lot. Had those Nebraska seedlings been grown from Manitoba seed they would have been as hardy as the home-grown.

The cut-leaved weeping birch is hardy in itself, no matter where grown, whether north or south.

Take the Russian olive, one of the very best trees for the semi-arid regions. No matter where grown, whether in Manitoba or Alabama, it is all the same and perfectly hardy. So with the Siberian pea tree.

There are now 150 kinds of lilacs in cultivation. Take out 10 of them and you will have 140 that will be hardy in Manitoba, no matter where grown. Too little attention is paid to these glorious ornamentals. A strange thing about it is that two of the Japan varieties (the *Syringa Japonica*, or tree lilac, and *S. Villosa*) are hardy at Brandon.

There are many kinds of tamarisk, *Tamarix*. A planter wishes to try some, but only one kind out of the 10 will succeed, and that is the silver, also called the Russian, the Amour, and *T. odessana*—four names to one plant and that not perfectly hardy.

The question that comes up for the northern planter is not so much where a tree or shrub is grown as whether it is of a hardy nature. Unfortunately many things offered by southern growers are not hardy in themselves. In Nebraska we find it is useless to try to grow any of the Dentzias, and of course they would be worthless further north. Most of the different kinds of philadelphus are too tender for Manitoba, while rhododendrons, kalmias, and azaleas we have entirely discarded and they would be useless further north. Of course southern agents will swarm a rich country like western Canada, and they will have alluring pictures. Well, you may buy the pictures, for they will be hardy; but you had better examine the lists recommended by your own horticultural societies before you buy the trees and shrubs.

Another thing is that many things which do well in the moister air of the Atlantic states cannot endure the drier air of the west. The white spruce of Maine is worthless in Minnesota, while Manitoba or Black Hills white spruce is all right. White pine from Massachusetts would not be hardy by the side of white pine of northern Minnesota. The eastern oaks do not succeed in the west, while the native oaks are all right.—*The Nor'-West Farmer.*

Value of Northern Trees

W. T. Macoun, C.E.F., Ottawa

The information contained in the article on "Hardy Trees and Shrubs," by C. S. Harrison, York, Neb., is in most particulars correct, judging by our own experience, but we differ from the writer in regard to the value of northern and southern grown trees of the same variety of fruit. A trunk of a nursery tree developed in the north and going through two or three winters there, is more likely to withstand the winter in the north after planting than one grown in the south. If the tree from the south is not injured the first winter or the following spring and becomes well established it will probably do as well as the northern grown tree.

If I were planting a tree at Ottawa I should prefer a well-grown, well-ripened tree from the Niagara peninsula than one with black heart grown at Ottawa. But by growing the trees carefully the hardy varieties can be grown without black heart in northern nurseries, and I should prefer such trees to those grown in the Niagara peninsula.

It is a fact that it takes many years for a tender tree to become any hardier in the north. Our experience, covering 19 years, has not shown any increase in hardiness of species or varieties of fruits and ornamental trees that killed back or proved tender 19 years ago. We do not know that it would take 1,000 years to make a change, but we believe it would take a great many. It is important to note, however, that red maple, black walnut, red cedar, or any other species having a great range from north to south in the wild condition may vary noticeably in hardiness, as has been observed at Ottawa and elsewhere; hence, it is preferable to get trees from stock, the parent tree of which was a native as near the northern limit of the species as possible, or as near the point where it is desired to grow them as possible. It may be said, however, that the large majority of the ornamental trees and shrubs hardy at Ottawa have been obtained from nurseries in a warmer climate, so that with most trees and shrubs which are grown in Canada, exclusive of the tree fruits where tenderness of trunk is an important consideration, it is not a matter of great importance where the stock is obtained, providing it is well grown and the wood thoroughly ripened. No doubt the nurserymen get their stock from as near the northern limit as possible.

Farmers' Vegetable Gardens

"Every farmer should have a small vegetable garden near the house," said Mr. Linus Woolverton, Grimsby, "to grow a succession of greens and vegetables for the home table. One-half of the farms of this country have nothing of the sort. On my farm I have a small plot of 100 by 40 feet, on which each season $50 worth of vegetables are grown. If a family of three can save $50 on one-tenth of an acre, how much more would a vegetable garden be worth to those farmers with large families, and with a number of farm hands to board. The vegetable garden pays. Most farmers think they have not time for small things like this; they don't stop to think that they can save money by growing vegetables instead of buying them."

Plants Must Bear Grief Well

ED. THE HORTICULTURIST,—About 1854, one Stephen B. Ainsworth, of Mendon, Ontario Co., N.Y., a professor of phrenology, became a fruit grower. He was a quaint, but intelligent, man, and a close observer of men and things. He was a member of the Fruit Growers' Assn. of western N.Y., and always attended its conventions. Upon one occasion he rose in the convention and said· "Fellow fruit growers, when you decide to plant a fruit tree select one that will bear grief well." That was his entire speech, and it was a good one.

If you wish to make a friend that you can "tie to," as they say in the west, "select one that will bear grief well." If you wish to buy a horse that will be of service, "select one that will bear grief well." To "bear grief well," is a good trait in a man, a horse or a fruit tree.

When a beginner in horticulture asks your advice as to the selection of a summer pear on quince or pear stock, do not advise him to purchase a Buerre Giffard just because it is of the best quality as a summer pear. The Buerre Giffard will not, as a young tree, "bear grief well," and when it gives up the ghost the novice in horticulture is not encouraged to try, try again. Tell him to purchase a Brandywine. He will eat the fruit thereof and be encouraged to try other varieties ripening at other seasons. When he has passed into the amateur stage as a fruit grower and lover, he will give a young Buerre Giffard, Buerre Bosc, or Winter Nilis, the care they demand to ensure success.

When a man or woman has tasted of a new fruit, or seen and smelled of a new flower, he or she wishes to know where to purchase one like it. This they should learn from the advertising columns of THE CANADIAN HORTICULTURIST. Therefore, I, as one of the founders of the Ont. Fruit Growers' Assn., am pleased to see a marked increase in the advertising pages of THE HORTICULTURIST. The men who have, and the men who desire to have and have not, meet in the advertising columns of your journal and become friends and co-workers in a most beneficent occupation. The advertising columns are in one sense, and a most important one, "news columns" to those who seek to find. The advertising columns, also, enable you to make a better journal for the same money, or the same journal for less money. You should have at least 50 pages of advertisements that pertain to the production and distribution of trees, fruits, flowers and vegetables. As the only journal of its kind in British North America, and as one of the best of its kind in the Western Hemisphere, you should have liberal support from those who have trees and plants, and all things that appertain to their successful production and distribution. May the advertising pages of THE CANADIAN HORTICULTURIST increase, is the wish of a life member of the Ont. Fruit Growers' Assn.—Frances Wayland Glen, Brooklyn, N.Y.

A little booklet entitled "Home Life of Women in Western Canada," has been received at this office. It is published by the Canadian Pacific Railway Co., and is a story of what women are accomplishing in the west. Should any reader of THE CANADIAN HORTICULTURIST desire a copy, it will be mailed to them upon receipt of a two-cent stamp sent with address to Advertising Manager, Canadian Pacific Railway Co., Montreal, Que

The Fruit Blossoms and What They Tell

FRUIT blossoms were from two to three weeks late in making their appearance this spring. Cold weather retarded the swelling of the buds. Everything is behind time. Nevertheless, the show of bloom on most kinds of trees indicates a fair to good crop. There is reason to be confident in the prospects for an abundant harvest. The conditions in various districts is mentioned in reports from the crop correspondents of THE CANADIAN HORTICULTURIST, as follows:

MONTREAL DISTRICT

Westmount.—The season is three weeks late but the prospect is good for apples, pears, plums, cherries, strawberries and raspberries.—R. Brodie.

TWO MOUNTAINS, QUE.

La Trappe.—Season is late. Fruit buds are just developing; notwithstanding, we believe apples will be abundant, and the pear, plum, cherry and small fruit crop fair, even good. The buds do not seem to have been affected by the severe winter or late frosts.—Prof. G. Reynaud.

ROUVILLE COUNTY, QUE.

Abbotsford.—All varieties of fruit trees and small fruits came through the winter with very little injury. Present indications are for a full crop, but late frosts may change the situation.—J. M. Fisk.

PRINCE EDWARD COUNTY, ONT.

Rednersville.—Prospects for apples are favorable. Trees came through in good condition. Plums, pears and cherries also promise a crop. The cold weather made fruit trees backward in blooming.—Harry Dempsey.

DURHAM COUNTY

Newcastle.—Blossom buds are abundant, and apparently uninjured by the late frosts. Prospects for fruit crop are good. Ben Davis and Baldwins, which bore heavily last year, will have a lighter crop this season, but Russets, Spys and Stark are promising a full crop. Pears, cherries and plums have plenty of blossoms. A large acreage of young apple trees was planted this spring, and more spraying will be done than ever before. There are four power sprayers in this locality within a mile and many hand pumps.—W. H. Gibson.

DUNDAS COUNTY

Irena.—Fruit trees and bushes came through in good condition. Apples promise a good crop. Cherries, plums and pears are not grown commercially here, but the few grown show indications of yielding well. Currants, gooseberries and respberries are looking fine.—A. D. Harkness.

ONTARIO COUNTY

Oshawa.—Prospects are favorable for a good crop of apples; the blossoms promise well. Pears are blooming heavily.—Elmer Lick.

PEEL COUNTY

Clarkson.—The outlook is favorable for a good crop of strawberries. Old raspberry patches are more or less winter killed and injured considerably by the snowy tree cricket; younger patches are looking fine. Tree fruits give indications of a good crop.—W. G. Horne.

HALTON COUNTY

Oakville.—The prospects for apples, cherries and plums are good; pears fairly good. Raspberries were badly winter killed. Blackberries will be fair; currants, good; strawberries, fair.—W. H. McNeill.

WENTWORTH COUNTY

Hamilton.—Present indications point to a good fruit crop. Peaches promise only a light yield, while plums, pears and grapes will be heavy. Strawberries may be about two weeks late owing to the backward weather, and the crop will not be heavy. The raspberry crop will be rather light. Growers expect high prices for all fruit. During the last few years, strawberry plants have been scarce, and the acreage has not increased, while the demand for the fruit has; the result is that buyers are compelled to pay higher prices. Raspberries are being contracted for by canners at $2 a crate of 24 boxes. There is a noticeable increase in the acreage of grapes.—Jas. H. Stephens.

Fruitland.—Fruit trees in general appear to have passed the winter exceedingly well and promise a good crop. Present indications are encouraging, but there is still time for damage by late frosts. Currant and berry bushes are looking well. It is too early to say much about grapes.—C. C. Pettit.

LINCOLN COUNTY

Grimsby.—Judging from the showing of fruit buds, this will be a favorable year for fruit growers. Cherry blossoms are abundant on both sweet and sour varieties; on the latter kinds, black knot is more abundant than for many years, and unless cut out at once will soon spread and destroy many orchards. Peaches came through the winter in good condition; there is promise of a fairly good crop. Much spraying with lime and sulphur was done this spring, although we are still free from scale; we hope in this way not to have it. Pears promise well, especially Bartletts, where the trees survived the blight of last year. Not for years has this disease shown itself so badly as in 1906. Old trees did not suffer much, losing only the young wood, but trees from 5 to 10 years planted are largely ruined, and are being cut out. This should make the price of Bartletts unusually high this year. Apples show well, even Roxbury Russett being full, and these have not borne a crop for several years in some orchards. It is too early to say much about small fruits and grapes, but in some plantations, raspberry canes were badly winter killed.—Linus Woolverton.

Beamsville.—Raspberries and blackberries promise a fine crop. Strawberries suffered severely from the open winter and the want of being protected by snow. Plants for setting are scarce and high, selling at $4 a hundred. The crop will fall short of last year. Early cherries are now in bloom and prospects for a full crop of all varieties are good. Peaches came through the winter all right, but in some quarters, not far distant from here, they are reported badly frozen. Plums promise a full crop. Pears and apples are also in good condition for an abundant yield. Fruit growers gradually are awakening to the all-important matter of spraying and spraying thoroughly.—W. B. Rittenhouse.

Jordan Station.—Strawberries that were protected will yield a good crop. Black and red raspberries and blackberries will give a good crop on young bushes, but old bushes were frozen back. Nearly all varieties of peaches promise a good crop; also pears, plums, especially Japanese cherries, grapes and currants. Apple prospects are fair.—W. A. Hunsberry.

Port Dalhousie.—Fruit prospects are good except for strawberries. Fruit trees appear to have passed the winter very well notwithstanding the want of snow protection. The fruit buds and blossoms promise a luscious crop of fruit of all kinds. The dry season last year was not favorable to the growth of strawberries, and the open winter and hard frosts of spring make a short crop probable, especially from unprotected patches. Raspberries came through fairly well, but as there is not as good a growth of cane as last year, the crop will be rather light.—A. M. Smith.

St. Catharines.—The long, cold spell seems to be broken. Trees are bursting into leaf and bloom with great rapidity. The country is a mass of blossoms. Nearly all kinds of trees apparently came through the winter in good shape. Raspberry canes are not looking so well. From present prospects, it would seem that we can expect a fair crop of fruit in general. Cherries and plums promise full crops; pears, medium. Prices will rule high as canning factories are paying good prices for the berry crops yet to be gathered. Looking at the largely increased acreage that is being planted this season of pears, plums, and especially of peaches and grapes, one cannot help wondering how many of the new growers will have the backbone and the stick-to-itiveness to prune, cultivate and spray the trees they are planting. If they do not, their labor will be for little or nothing. A large percentage of the planting, however, is being done by the growers who have already learned that only by taking care of their trees can they be made to pay, and the better cared for, the better will they pay.—Robt. Thompson.

KENT COUNTY

Chatham.—The prospects for apples are good, except for fall varieties, which will be light. Pears will be fair. Peach bloom is all killed, and many of the trees Small fruits promise well. Japan plums seem to have suffered with peaches; other plums show considerable bloom; cherries also. Among apples, Baldwin, Spy and King are the most promising. Kieffer pears will be light.—W. D. A. Ross.

ESSEX COUNTY

Leamington.—Fruit growers were much surprised this spring to find that a large number of peach and other trees were dead. As the winter had been mild, no one had expected injury. The general opinion is that the harm was not done during the winter, but that it was the result of the severe frosts that came when the trees were in full leaf last October. Trees that were old enough to bear and young trees that were well ripened in wood, did not sustain much injury. Uninjured peach trees promise a good crop. Spraying has been practised generally and thoroughly. It is to be hoped that the dreaded scale will not spread so rapidly this season as last.—J. L. Hilborn.

Leamington.—Fruit prospects are not any too favorable. A large quantity of peach buds have been killed; many trees appear to be dead, still there is prospect for some peaches, perhaps a fair average crop. Cherries, both sweet and sour, show well. Apples promise to give a crop; later on, conditions may show otherwise. Strawberries are badly quite killed out; also, some raspberries. Plums differ in bloom; Abundance, full; Burbank, almost none; Lombard and some others, full. Pears show well.—E. E. Adams.

LAMBTON COUNTY

Forest.—The prospect is good for an abundant crop of fall and winter apples. Early plums and peaches are damaged to some extent by late frosts, but later varieties have come through all right.—A. Lawrie.

BRUCE COUNTY

Walkerton.—All varieties of tree fruits appear to have wintered well. Bush fruits look fairly well except raspberries, which seem to have been damaged by late frosts. The apple bloom gives promise of a fair crop; pears, good; plums, medium; cherries, good.—A. E. Sherrington.

GREY COUNTY

Meaford.—Raspberries and strawberries are in condition for a good crop, except those on wet ground. Cherries, plums, and pears promise lots of bloom. Most varieties of apples will bloom well. Spys will be shy as they gave a full crop last year.—A. Gifford.

NOTES FROM THE PROVINCES

By our Regular Correspondents and Others

British Columbia

C. P. Metcalfe, Hammond

Frosts in the latter part of April and the early part of May curtailed the expectations of the fruit grower that the year would be one of large crops. Fruit growers fully expected that, owing to the lateness of the spring, the bloom of trees and plants would escape injury from frost. The crop of strawberries has been almost cut in half, especially the early varieties. Raspberries and blackberries have escaped the spring frosts, but were winter killed a little in some parts. Cherries, particularly sweet cherries, have suffered heavily, and the crop will be a light one. Plums and apples seem to have escaped fairly well. Only some of the early blooming varieties have been touched. The bloom of the prunes and pears has not fallen yet, but the prospects are for a fair crop.

Spring spraying has been nearly completed, and the weather has been all that could be desired for beneficial results. The Provincial Government is enforcing the laws regarding the spraying and care of orchards. Between 1,500 and 1,600 orchards have been inspected. The campaign for the protection of the fruit industry of the province is looked upon with disfavor by many of the owners of old orchards, who, in the past, have done nothing in the way of spraying, pruning, etc. But the enterprising fruit grower has everything to gain and will welcome these attempts to control, to a certain degree at any rate, the spread of fruit pests and fungous diseases. The goverument has also undertaken the spraying of the orchards on the Indian Reserves, hoping to demonstrate to the Indians the benefits to be derived and also to control the insect pests and fungous diseases in those parts.

The Okanagan Valley

H. L. Gordon, Vernon

The late spring has not retarded the operations of the local real estate agents; indeed, their activities seem greater than ever, and their numbers increased by arrivals from Winnipeg. Something very like a boom is in the air in certain parts of this valley, but a steady legitimate business is proceeding in and around the older centres.

The most notable deal of recent times has just taken place in Vernon, the capital of the Okanagan. Two estates, comprising together about 17,000 acres, have been sold for a substantial figure to a Belgian syndicate, well-known for its operations in land in South America, South Africa, Egypt and nearer home. It is said that 8,000 acres of this land is irrigible, and that a large proportion of it will be divided into small lots for sale as fruit farms. The quality of the land thus purchased is quite up to the high standard prevailing in this district, but it is only the fact that water for irrigation purposes has recently been made available that has permitted the purchase with a view to fruit-growing.

It is to be hoped that when the land is offered for sale in 10 and 20 acre lots, as fruit-land, the vendors will bear in mind that the fruit farmer requires also a little pasture or range for his horses and cow, and will offer suitable land at a more moderate price than is now asked for fruit-land. This has been overlooked in some previous divisions of property in the neighborhood of Vernon; the purchasers of lots at $150 to $200 an acre have naturally desired to set out every available acre in orchard, and have been denied land at a reasonable price for pasture. It thus happens that many fruit farmers here are reduced to feeding their horses on hay costing $25 per ton, and their families upon condensed milk. A few, a very few, amongst the many English, Scottish and eastern Canadian families, who have settled here in search of a profitable pursuit, amidst pleasant surroundings, can afford to smile at the irony of the situation; to the majority it appears an undesirable addition to the heavy expenditure incurred while awaiting the arrival of the orchard at the bearing state.

Quebec

Auguste Dupuis, Director, Fruit Experiment Stations

In the eastern and northeastern part of the province the winter has been extremely cold, 15 to 30° below zero, weather lasting whole fortnights. Snow fell early in November and did not melt before the middle of April. No sudden changes of temperature having occurred and the cold weather having increased gradually, the apple, pear, plum and cherry trees did not suffer; the fruit buds are perfect and promising.

Mr. Auguste Dupuis
Director, Quebec Fruit Experiment Stations

The season is very backward; buds are just beginning to swell. All through the province more fruit and shade trees are planted this spring. Unfortunately great mistakes are made in the selection of varieties. Hardy ones that mature their wood promptly should be chosen. The popularity of the Baldwin, Greening and King apples for home use induces farmers to buy these varieties, quite unsuitable for cultivation in the north, where the summer is too short for maturing their wood.

Another hindrance to successful orcharding is the ignorant tree pedlar. Some nurserymen, advertising for agents, mention that no experience in tree culture is needed to sell trees; therefore, agents incompetent to guide the farmers on the selection of varieties, on planting and culture, often tell the farmers to do the least preparation of the soil and after culture possible

The Hon. Mr. Allard, Minister of Agriculture, being informed of the losses incurred by injudicious selecting of varieties and by wrong plantation has secured the services of experts to instruct the people in practical fruit growing. The demonstrations are made in the orchards and do much to educate the farmers.

Arbor Day was well observed this year. A great destruction of eggs of the tussock moth was made by school children in some localities. Prizes were given. This caterpillar increased prodigiously last year. Those who do not gather the eggs will see their trees defoliated. I gathered and counted 42 nests on a Tolman Sweet apple tree: if left on the trees over 10,000 caterpillars would have hatched from the eggs, each nest containing 250 to 300 eggs.

Fruit stations have been established in Berthier and Yamaska counties, where the fruit industry has been neglected. The nurseries of Ontario, whose advertisements in THE CANADIAN HORTICULTURIST is a guarantee of their products, have made extremely large sales. Whole train loads have come to this province this spring.

Montreal

E. H. Wartman, Dominion Fruit Inspector

The heavy frost of Friday night, May 10, produced ice as thick as an ordinary pane of glass, and made some of our apple orchardists fear results. I have visited a number of orchards, and on examination of buds, feel assured that no damage is to be feared, as the season being so cold, the buds are very backward. Fruit buds show up well. As the Fameuse will produce about 80% of the crop of the island, I look for more of this variety than last year. Later on I expect to see many dead limbs on our apple trees on account of being encrusted by oyster-shell bark-louse. What a pity, when proper spraying will destroy them! Raspberry canes are in a healthy condition.

Probably 3,000 barrels of apples are still in cold storage, and in irregular condition. In some barrels of Spy apples, No. 1, five specimens would cover the loss by rot; others will necessitate repacking at a loss of half a bushel. The packer who thinks that he can mix in half a bushel of windfalls in a barrel of No 1 apples, and expect them to keep late in spring, is making a mistake. Last week I saw a fruit dealer open a No. 1 barrel of Spy apples from pressed end, and finding them so beautifully colored and preserved, he marked $7 on the barrel as a sale guide. It always pays to keep carefully hand-picked apples by themselves and to mark windfalls, "windfalls," no matter how free they appear to be from bruises when gathered from the ground. This mark is a danger warning that will put money in the fruit man's pocket.

Prince Edward Island

Rev. Father Burke, Alberton

The spring outlook is, as elsewhere, anything but early. We are usually a month behind Ontario with the seeding. We had a snowstorm on May 12, something of a rarity for us even. But I see that the cold wave has extended to the greater part of the continent, and we cannot complain, even if complaining did any good.

As the great drifts of the past winter melt away from our plantations, I notice that there has been considerable damage done, by breakings-down. Snow seems to have piled up in the most unaccountable way, in places never before menaced, and, as a consequence, there is lamentation among the orchardists, in many parts.

Our own modest orchard experienced a very general curtailing, two years ago, from this source. We bolted and braced and doctored the bruised and broken trees, with a care and tenderness which should have merited future exemption; but, the sins of improper location have to be expiated, and storms and the like are no respecter of persons This year again, the snow piled in mountains on the older portion of our planting, and the old fractures were quickly discovered, and our painstaking, as a general thing, turned to naught. Shovelling with trees, too closely placed and well grown, does little good, in our experience.

With young stock it may be possible to shovel it away; often, however, this service does more harm than good.

There has been considerable disappointment here in fruit raising, owing to these untoward circumstances, and the fact that of late we have had a continuance of poor or small crop returns; but this is the fortune of almost any prosecution in life; it has its ups and downs. Besides, being fresh in the enterprise, we have doubtless made many mistakes, and must pay for them. It seems sure that we can grow good fruit here, though, if we get at it properly, and that should be incentive enough for most of men to make the business go. The plantings this spring, then, have not been on the same large scale as within late years, but they will be more judicious and may mean much more for the industry in general.

A number of early summer orchard meetings which Chief McNeill will address are projected. He announces that he will take up cooperation as a necessity to the placing of our apple orchards on a paying basis, and in this we thoroughly agree with him. The Dominion Government seems to be desirous of assisting horticultural cooperation after a plan. The most urgent need now is not of an elaborate all-round establishment of cooperative institutions, after the cheese-factory fashion; it is a practical assistance of this nascent industry to its feet with us, by the expenditure of small grants to local packers, so as to secure them the packages and enable such sufficient solicitation among the growers as may bring the product of their trees to one or more points for handling effectively. Often in these assisted enterprises much good money is thrown away in exaggerated experimentation; not only the public money but the hard-earned dollars of the cooperators. The gifts of the department come into the category then of "Greek gifts" to the people. We hope that Chief McNeill will have some practical plan worked out when he reaches us.

Nova Scotia

G. N. Gordon McKeen, Gay's River

The outlook for a fruit crop is encouraging, although it is too early to predict definitely. The past winter was quite severe, the thermometer registering in February below zero about one-half of the month. The trees came through unusually well, however, as there was a good covering of snow on the roots. The weather is still cold and wet.

Small fruits are showing fairly well. The hardy varieties of blackberries came through in good condition, but the tender kinds were killed back considerably. Gooseberries, especially Downing, give promise of an abundant crop. Strawberries look well and suffered little loss from winter killing. Cranberries did not suffer much from the usual heaving by frost and probably will yield a good crop.

Saskatchewan

W. S. Woodruff, Lashburn

In this country there has not been much fruit tried except a few currants and gooseberries. Last year some farmers put out a few raspberries and blackberries, but they killed back considerably. It is probable that the roots are all right and that new canes will spring up this summer. The past winter was the most severe one ever known in the province.

Wild berries grow and thrive in abundance. I believe that good, hardy varieties of fruit, properly cared for, can be grown successfully. The climate is no more severe than that of Minnesota, and in that state much fruit is grown. A number of Hibernal, Russian Transparent and other varieties of that type have been tried here and are expected to do well. We hope to see a creditable development of horticulture in all its branches.

Cooking Rhubarb and Strawberries

Miss L. Shuttleworth, Toronto

IN cooking rhubarb, we should aim to keep the pieces whole and attractive in appearance. To accomplish this, it is much better to bake it in the oven than to cook it on top of the stove, which is the usual custom. After washing the rhubarb, cut the stalks in pieces about two inches long. Place in a granite or earthen dish. Add one cup of sugar to about one pound of rhubarb. Cook slowly in a covered dish until sugar is all dissolved and the fruit is tender but not broken. More water may be added before serving if desired.

A sprinkle of salt will help to overcome the acid of rhubarb when cooking it, but do not add too much.

When making rhubarb pie, did you ever use a tablespoonful of sago sprinkled into it to jelly the juice and to keep the pie from boiling over? It is very much better than the sprinkle of flour. Just try it.

It is always well to have a few jars of rhubarb stored away for use between seasons, and here is a very easy but sure method of canning it.

CANNING RHUBARB

Cut the rhubarb when it is young and tender. Wash it thoroughly; cut into pieces about two inches long. Pack in sterilized jars. Fill the jars to overflowing with cold water and let them stand five minutes. Drain off the water and fill again to overflowing with fresh cold water. Seal with sterilized covers. When required for use treat the same as fresh rhubarb. Green gooseberries may be preserved the same way.

TO PRESERVE STRAWBERRIES

Cover four pounds of fine ripe strawberries with three pounds of granulated sugar, and allow them to stand in a cool place overnight. Strain off the juice, pour it into a preserving kettle, and let boil gently 15 minutes, removing all scum. Add the berries, boil two or three minutes, then pour into hot jars and seal immediately.

STRAWBERRY WHIP

One cupful of ripe strawberries, one cupful of sugar and the white of one egg. This beaten altogether in a bowl with a fork, for 10 or 12 minutes, will give nearly a quart of delicious strawberry whip, suitable as filling for strawberry short cake and an excellent substitute for whipped cream.

SOME POINTERS

In cooking fruit, never boil it hard; by so doing, you lose much of the delicious fruit flavor. It is better to simmer it gently.

Fruit that is cooked in the skin, such as plums, cherries, etc., should never be plunged into boiling hot syrup, as this will toughen and crinkle the skin. Better cool the syrup before adding the fruit.

Experiment Station Bulletins

FROM every state east of the Mississippi River, and from Missouri, Arkansas, Louisiana, Texas, Minnesota, and the Province of Ontario, Canada, the terrapin scale, *Eulecanium nigro fasciatum*, has been reported, says circular 88, United States Department of Agriculture. It is noteworthy that this species of scale, more conspicuously marked than any other of the genus, is the most generally injurious one. In consequence of its wide range of food plants, including both wild and cultivated trees, it must be considered a dangerous pest, which may be controlled but never eradicated.

This scale insect can be recognized and identified especially well in the hibernating winter stage, when it appears as a reddish hemispherical scale 2mm. in length, mottled with radiating streaks of black which are especially conspicuous about the margin. Sometimes these radiating streaks coalesce, forming a subdorsal dark band surrounding the central reddish boss. Occasionally individuals are found which are entirely red or black.

For many years the terrapin scale has been considered a specific enemy of the peach, and has been confounded by many entomologists and others with *Eulecanium persicæ*, the pre-eminent peach soft scale of Europe. At present we know it as infesting a large number of host plants, including many varieties of peach and cultivated plum; various species of wild plums and cherries; *Prunus simonii*; apple; pear; quince; several species of Cratægus; three species of maple, particularly *Acer saccharinum*; oriental and western sycamores; Carolina poplar; olive; blueberry (*Vaccinium* sp.); Bumelia, and spice bush (*Benzoin benzoin*).

Unfortunately the lime-sulphur wash, which is such an excellent remedy for the San Jose scale, and which at the same time controls the peach leaf-curl, is worthless for treating the terrapin scale. Numerous experiments in the use of the lime-sulphur wash against this scale on various host plants have produced only negative results.

Kerosene emulsion has proved to be the most effective remedy for the control of this pest. This emulsion when properly made according to the formula below can be sprayed with safety on any tree during the dormant period in winter or early spring before the buds open—at a strength of 20 to 25 per cent. A nozzle throwing a fine spray should be used. Care should always be exercised to prevent the liquid from running down the trunk of the tree and collecting about the roots, as the oil, which will be retained by the soil around the roots for an indefinite period, might seriously injure or kill the tree. Make kerosene emulsion as follows:

Stock solution (66 per cent. oil).

Kerosene (coal-oil)	2 gallons
Whale-oil or laundry soap (or 1 quart soft soap)	½ pound
Water	1 gallon

Dissolve the soap in boiling water, *then remove from the fire*, add the kerosene immediately and thoroughly agitate the mixture until a creamy solution is obtained. This can be done by pouring the mixture into the tank of a spray-pump and pumping the liquid through the nozzle back into the tank. This is a stock solution which must be diluted before using. In order to make a 20 per cent. emulsion, add to each gallon of the stock solution about 2½ gallons of water and agitate thoroughly before using. For a 25 per cent. solution add to each gallon of the stock solution 1⅔ gallons of water and agitate thoroughly. This strength will kill a large percentage of the hibernating females, without injury to the trees.

If a good naphtha soap can be obtained the preparation of the emulsion will be simplified. It will be unnecessary to heat the solution, since the kerosene will combine readily with the naphtha and soap and form a perfect, cold, milky-white emulsion when the mixture is thoroughly agitated. If naphtha soap is used, double the amount called for by the formula, and emulsify in soft (rain) water.

PEACH MILDEW

The Agric. Exp. Sta., Fort Collins, Col., Bull. No. 107, deals with peach mildew. This disease, as yet not prevalent in Ontario, is due to a fungus that attacks leaves, twigs and fruit. On leaves, the attack is confined largely to the under surface, as sunlight is its worst enemy.

It is very conspicuous as white blotches along the twigs, the underlying bark becoming dry and brown. It appears on the fruit while it is yet small and immature, causing them to fall prematurely. In some cases, it ruins the crop for market. While the disease is not troublesome in Canada, it deserves watching. Troubles of this nature sometimes come unexpectedly. Among the preventative measures suggested are pruning the trees to an open head. Plant and prune to favor a free circulation of air about and plenty of sun about and on the inside of the tree. Sulphur dusted on the trees and Bordeaux mixture are recommended as remedies.

FRUIT STORAGE EXPERIMENTS

The fruit growers of Canada will be interested in watching the results of fruit storage experiments that are being taken up in Iowa. The character of the work that is proposed has an important bearing on the fruit industry not only of that state, but also of others and of Canada. Iowa orchards are producing a superabundance of fall apples and a proportionate scarcity of late winter fruit. This is particularly the case in the northern half of the state, where there is a great scarcity of hardy varieties of good winter apples. This condition presents two problems of economic importance.

The cold storage of fall varieties, thereby lengthening their season, and making it possible to distribute the crop to more distant markets and also at better prices to the grower. The storage of fall sorts for local market and home consumption in winter as a substitute for late varieties. The aggregate amount of fall apples which annually goes to waste in Iowa is enormous. With ample storage facilities and proper methods of handling the fruit, both before and after it is stored, there can be no doubt that much of this loss might be prevented and thousands of dollars which are sent out of the state would remain in the hands of the Iowa fruit grower.

It has been clearly demonstrated by carefully conducted cold storage experiments, that many of the fall varieties of apples can be kept 2 and 3 months beyond their normal period in first-class condition. A variety varies much in its storage quality under different soil and climatic conditions, and while the leading commercial varieties grown in Iowa have already been tried in storage in older fruit growing sections, yet these tests do not apply to Iowa conditions, and the value of Iowa fruit for storage has not yet been determined.

The Hort'l section of the Iowa Exp. Sta. in cooperation with the Division of Pomology of the U.S. Dept. of Agri. is taking up the investigation of a number of important problems connected with the cold storage of apples grown in that state. Observations are to be made on the keeping quality of different varieties of apples as related to the age of the tree, the type of soil upon which it is grown, whether it is grown under sod or under clean tillage, the degree of maturity of the fruit, the question of immediate vs. delayed storage, of wrapped vs. unwrapped fruit, and of a small package vs. barrels. The work will be conducted by Mr. H. J. Eustace, expert in fruit storage investigations of the Division of Pomology, in cooperation with Prof. S. A. Beach, of the Iowa Exp. Sta. THE HORTICULTURIST and the fruit growers of Canada will watch the work with interest.

CURCULIO ON APPLE TREES

Experiments to contribute to the knowledge of the value of insecticide sprays as a preventive of injury to the apple by the plum-curculio, have been conducted by the Illinois Exp. Sta. In a word, Bull. No. 108 says that it was found that four times spraying with arsenate of lead at a cost of 17 cents a tree increased the yield of the tested orchard, about one-half, the average size of the fruit by about one-fifth, and so improved the quality of the apples that they were worth from two and a half to three times as much as if the orchard had not been sprayed.

Analysis of apple peelings made the day after the trees had been sprayed once with arsenate of lead at 4 times the usual strength, equivalent, consequently, to 4 successive sprayings, yielded 36.6 parts per million of arsenious acid, equal to .256 of a grain of arsenic to an avoir. lb. of the peelings. This would mean that one would have to eat approximately 4 lbs. of apple peelings to get a grain of arsenic if the fruit were taken the day after spraying with arsenate of lead at 4 times the usual strength.

By a comparison of apples taken from different parts of the check and experimental plots it was shown that curculios passed from tree to tree to such an extent that rows of sprayed apples adjoining the check plot, and rows of unsprayed apples adjoining the experimental plot, may not be used for comparison if exact results are expected, but that check and experimental trees must be taken from rows some distance within their respective plots.

NOXIOUS WEEDS

The Ont. Dept. of Agri. has published a synopsis of the act to prevent the spread of noxious weeds. In brief, it is as follows: It is compulsory for the owner or occupier of land to cut down and destroy on that land Canada thistle, ox-eye daisy, wild oats, burdock, as often as is necessary to prevent their seeding, provided that this does injure growing grain crops. By-laws may extend the operation of the act to any other weeds and to any disease of grain or fruit trees, excepting only yellows and black knot in fruit trees. The owner or occupier of land is furthermore required to destroy, before the ripening of their seed, all noxious weeds growing on any highway (not being a toll road) adjoining his land from the boundary of such land to the centre of the road. In this event of neglect, upon written notice, to carry out these instructions, it is incumbent upon the authorities to enter upon the land and cut down all such noxious weeds, charging the cost against the land with the other taxes. As offences against the act are punishable by fine or imprisonment.

5,000 Facts About Canada.—A remarkable little booklet has been compiled under the above self-explanatory title by Frank Yeigh of Toronto, the well-known writer and lecturer on themes Canadian. Perhaps no one in the Dominion is better qualified to make such a compilation. Its value is, as claimed, "worth its weight in Yukon gold or Cobalt silver." The idea is a clever one, viz.: a fact in a sentence, giving a wonderful mass of information in the smallest compass on every phase of our commercial and industrial life, and our natural resources. The booklet is sold for 25c., and may be had from newsdealers or from the Canadian Facts Publishing Co., 667 Spadina Avenue, Toronto.

A patent weed exterminator has been invented by Mr. Herman Thœni, of Spokane, Wash. Its essential feature is a tube provided with a suitable penetrator, which is tapered to a point, and adapted to being filled with liquid. The point of the penetrator is pressed into the heart of the plant or weed, and, by means of valves and other apparatus, a desired quantity of the liquid is allowed to pass out. A few drops of a suitable liquid is sufficient to kill an ordinary weed. The implement is claimed to be particularly useful for killing weeds on lawns and other places where hoeing cannot be done.

"I have used a Wallace Power Sprayer (Standard) on 1,100 apple trees, about 35 years planted 30 ft apart, tops touching in places, and could always spray a tree with plenty of pressure left. Sometimes I have sprayed as many as three trees without putting the pump in gear. I have not lost either time or cash through any failure of machine. I have had it up to 200 lbs. pressure, but generally run at 80 to 125. I use 8 nozzles."—J. B. Tweedle, Kilbride, Ont.

Items of Interest

The Missouri State Horticultural Society will hold its semi-annual meeting on June 4, 5, and 6.

The prize list for the Canada National Exhibition has been issued. Copies may be had by applying to J. O. Orr, manager, Toronto

I congratulate THE CANADIAN HORTICULTURIST in regard to the fine quality of its paper, clean type and general make-up, and on the excellent and timely articles that it publishes. —E. Preston, Port Dover, Ont.

That market gardening is a healthy and useful occupation is evidenced by the recent decision of the prison commission of Georgia, to teach the work to the youthful inmates. Some ten acres have been set aside for the purpose. The objects are to maintain the health of the youths and to place them in a position to earn good wages when their terms expire.

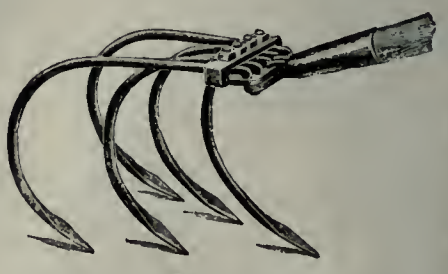
Notwithstanding the loss of the Government grant of $500, the Niagara District Horticultural Exhibition, to be held in St. Catharines in September, will be better and larger than the one of last year. The city council has granted $350 to the horticultural society, $300 of which will be devoted to the exhibition. The Lincoln county council has granted $175 for the same purpose. The prize list will be revised at an early date.

The death is announced of Mr. Robert Hamilton of Grenville, Que. Mr. Hamilton was well known among the fruit men of Canada, having been identified for many years with the Quebec Fruit Grocers' Association. Of late years, Mr. Hamilton has been connected with the exhibition branch of the Dominion Department of Agriculture and took a prominent part in the arrangements of the fruit exhibits from Canada, at the leading international exhibitions in recent years.

Owing to his physicians having ordered him to undergo a very critical operation, Mr. J. Horace McFarland, the president of the American Civic Association, was prevented from addressing the meetings of the Hamilton, Toronto, Guelph, Cobourg and Perth horticultural societies during the latter part of April and first of May. It is probable that Mr. McFarland will be able to address these societies and any others who may wish to secure his services the coming fall. Several of the societies have expressed a desire to have Mr. McFarland at that time.

Simcoe.—On the whole, the apple crop promises to be medium, with Spys and Kings a full crop.—Jas. E. Johnson.

The "Buco" Hand Cultivator



Tines are OIL TEMPERED STEEL SPRINGS, adjustable to width. Handle 4½ feet long.

It gets DOWN DEEP, loosens the soil thoroughly, and cleans the weeds out BY ROOT. One man with a "BUCO" is worth two with a hoe. Less labor, more vegetables. Great around trees and shrubs.

Sent by Express on receipt of price, $1.50 each. Return after trial at our expense, and money back if not satisfactory.

BAILEY-UNDERWOOD CO., Limited
Tool Dept. **NEW GLASGOW, N.S.**

Mention Canadian Horticulturist when writing

Vegetable Crop Conditions

THE cold, wet weather this spring has not been favorable to the growth of early vegetables. Everything is late. The situation in the various districts is outlined in reports from crop correspondents of the Ontario Vegetable Growers' Association, as follows:

OTTAWA DISTRICT

Billings Bridge.—Hot-bed stuff is in good condition. Lettuce is very cheap and plentiful; there is a large local supply and a quantity of imported. There is plenty of rhubarb for the demand. Radishes are scarce; green onions very plentiful. Fall roots are getting scarce. Imported cabbage is plentiful. About the average acreage of crops will be grown as last year.—T. Mockett.

TORONTO DISTRICT

Humber Bay.—Although the weather has been cold, the land has worked nicely, and many crops are in. Spring crops are about two weeks later than usual. Dutch set onions are doing well. Carrots, beets, turnips and onions promise to be a fair crop. There is a slight increase in the acreage of early cabbage. Not many peas are sown yet. Large patches of celery have been planted, and large quantities of early potatoes. It is to be hoped that gardeners will keep up the price of rhubarb to 20 cents, and onions 3 doz. for 25 cts.—J. W. Rush.

PEEL COUNTY

Clarkson.—With a favorable season, a heavy crop of potatoes should be harvested, as nearly all the land planted has been heavily manured. Sweet corn is being planted rather extensively, but will be late on account of the continued cold weather. A number of gardeners have lost their tomato plants. Growers who depend on transplanting to cold frames have had a trying time growing their plants. Those with plenty of hot manure will be all right. All vegetables will be late this year.—W. G. Horne.

HAMILTON DISTRICT

Early out-door vegetables will be about two weeks late. Until the last few days there has been but little growth. Asparagus has been scarce and is worth from about $1 to $1.25 a doz. bunches; spinach, $1 a bu.; green onions, 2 doz. for 25 cts.; rhubarb, 30 cts. a doz. bunches; lettuce, 40 to 50 cts. a doz. heads; radish, 30 to 40 cts. a doz. bunches. Potatoes are still high and selling at $1.25 a bag. New potatoes will be about three weeks later than usual. Tomatoes promise a light crop owing to difficulty in raising the plants. The acreage of tomatoes has decreased greatly the last year or two and this year the decrease is more noticeable than usual.—Jas. A. Stevens.

WELLAND COUNTY

Niagara Falls South.—Everything is about two weeks late. Seeding is only partly done. Spring sown lettuce and spinach is making slow growth. Hot-house lettuce is scarce and in good demand. Early plantings of sweet corn are reported to have rotted. Early seed potatoes are selling at $1 a bu.; late, 80 cts. Several growers have lost tomato plants by frost.—Thos. R. Stokes.

ESSEX COUNTY

Leamington.—Vegetable growers are busy planting melon seed; there promises to be the largest acreage that has ever been grown here. The change in the duty has had a great influence in this line. Tomatoes are now being planted in the field. A much larger quantity will be on the market this year. The tobacco business is apparently overdone with the promise of low prices, and many new men are trying their hand at early tomatoes. Sweet corn is being planted largely; also, wax beans. Cabbage is all in the field, and is looking well. Onions have been planted quite extensively; also, potatoes. As a usual thing, potatoes are up and growing well at this season of the year, but are only now coming through the ground even though sprouted under glass. Asparagus is on the market, as also hot-house cucumbers at $1.60 a 11 qt. basket. A few hot-house tomatoes are in.—E. E. Adams.

KENT COUNTY

Chatham.—Vegetation has made very little growth. Onions, beets and carrots are not much above ground. Transplanted beets have damped off considerably and will not be as plentiful as usual. Lettuce continues to be scarce, and the price keeps at 15 cts. wholesale. A small quantity of asparagus is being offered at about 30 cts. a lb. Tomato plants are looking fairly well but have required careful nursing.—Fred. Collins.

WELLINGTON COUNTY

Guelph.—Owing to the cold, backward weather during the first 10 days of May, the crops are somewhat later than usual. Early seeds planted the latter part of April are not much above ground. Heavy frosts have occurred on the nights of May 10 and 11, and, as a result, several growers have lost some of their tomato plants, which means a serious loss to them, and will also largely decrease the supply of plants for the general trade. Green onions and lettuce are the only vegetables being marketed to any extent at present. The warm weather ushered in on May 13 will greatly increase the amount of work, as more and more land is becoming dry enough to work.—H. S. Peart.

The Picton Horticultural Society held an interesting meeting recently at which Prof. H. L. Hutt of the O.A.C., Guelph, delivered a lecture.

Reliable Plants for Spring Planting

ROSES

SNOW QUEEN (Frau Karl Druschki or White American Beauty). The new German Rose which has made such a sensation. Flowers exceptionally large and snow white. Strong grower and free bloomer.

BABY RAMBLER. This new Rose is of dwarf habit and continually blooms from Spring until frost. At the approach of cold weather the plants can be potted and brought in the house, where they will bloom throughout the winter.

Also Baron Prevost, Crimson Rambler, Dorothy Perkins, Madame Plantier, Marshall P. Wilder, Margaret Dickson, Paul Neyron, Ulrich Brunner, White Ramblers, Yellow Ramblers, and a general assortment of extra hardy field-grown Roses which cannot fail to give satisfaction.

WRITE FOR LISTS AND PRICES

EVERGREENS

250,000 NORWAY SPRUCE

(Picea excelsa)

in all sizes from 9 inches to 3 feet

All transplanted, healthy and bushy stock, just in the condition for forming thick Evergreen hedges and shelters.

Also Thuja Nervæneana, Thuja Pyramidalis, Thuja Semperaurescens (a most beautiful bronze and golden coloured dwarf growing arbor-vitæ), Austrian, Scotch and White Pines, all sizes. Retinosporæ in variety, and the leading varieties of Thuyopsis, Abies, Taxus, etc.

WRITE FOR LISTS AND PARTICULARS

Stock packed carefully and shipped by Freight or Express. Shipments made daily by G.T.R., C.P.R., M.C.R., T. H. & B. Ry. and Canadian and Dominion Express

ESTABLISHED ¼ CENTURY

E. D. SMITH

NURSERIES 750 ACRES

HELDERLEIGH NURSERIES

WINONA, ONTARIO

Mention The Canadian Horticulturist when writing.

POULTRY DEPT.

Conducted by
S. Short, Ottawa

Hatching for the season should be completed by June 20. Chicks hatched after that date may be classed as late. Many failures in the poultry fraternity may be traced to the late chickens. They do not make sufficient growth, either of frame or feathers, to stand the cold nights of early September, especially chicks of the large breeds. The consequence is, if they escape disease, that they mature prematurely, and one has a flock of birds half to three-quarters the size they should be, and in most cases fowl that are never profitable and certainly not fit for breeding.

It is the late chick that is first to take disease which, if not noticed at once, is speedily communicated to the rest of the fowls, and disaster and fatalities take the place of eggs and profit for that season. Again, July chicks do very well as long as they are in the brooders or with the hen; after that, the tendency is for them to huddle together at night for warmth in the corners of the room or wherever they may be quartered. This results in serious and permanent injury to the weaker birds. The outside chicks of the bunch are continually scrambling over the backs of the inner and under ones, much in the manner of the scrimmage men in a game of Rugby, and with the same effect. The half-grown feathers are rubbed or scratched off, and the skin on their backs is torn and bleeding; I have frequently seen 50% of a late hatch in this condition, the chicks without a feather on them when two months old and over, and their owner wondering why the feathers did not grow.

The only excusable reasons for hatching later than the time given in the beginning of this article is, when there are no other fowl on the premises, a small number may be hatched and be successfully reared, having the benefit of the whole accommodation and receiving special attention, or by the professional poultry men who hatch every month of the year, having special plants for this purpose.

If at all feasible, chickens of all ages should be separated from the laying hens. Chickens require feeding oftener than the old birds. There are several grain mixtures sold by dealers made up especially for growing chickens, that are excellent. They consist of cracked corn, rice, millet seed, peas and a little fine mica grit; making a splendid food for the chickens, but too expensive to feed to old birds. The chicks eat so little for the first six weeks that the cost is trifling; after that time, they may safely be put on the cheap ordinary grains.

A meeting of the directors of the Ontario Horticultural Exhibition was held on May 9. The following are the officers for the ensuing year: R. J. Score, president; W. H. Bunting, 1st vice-president; H. R. Frankland, 2nd vice-president; H. B. Cowan, secretary; J. H. Dunlop, treasurer; and an executive committee composed of the foregoing and J. Chambers and P. W. Hodgetts.

Arsenate of Lead

Ed. THE CANADIAN HORTICULTURIST: We note in your May issue, in an article on spraying by T. B. Revett, that one application of arsenate of lead would be sufficient. Being manufacturers of Swift's arsenate of lead, we are interested in what he states. We think, however, that one application, except in special cases, is not enough, as new surfaces due to the growth of the tree are being exposed as the season advances. We do claim, however, that two or three sprayings may be omitted if Swift's arsenate of lead is used.—Merrimac Chemical Co., Boston, Mass.

[Note.—An error occurred in the publication of the article referred to. It was intended to state that the manufacturers of arsenate of lead claim that an application of the material will remain on the trees throughout the season, but that two or more applications will give better results.—Editor.]

IF YOU HAVE APPLES
OR POULTRY TO CONSIGN

we can handle them for you to advantage. If apples are in car lots, write us and we can sell them for you f.o.b. your station

THE DAWSON COMMISSION CO. Limited
Cor. West Market and Colborne St.
TORONTO ——— ONTARIO

GATHER YOUR CHERRIES WITH
THE ONLY SUCCESSFUL CHERRY PICKER

The cherry is not touched or bruised by the hand. The long, unsightly stem is severed and most of it is left on the tree; hence the fruit looks much more attractive in the box or basket. It also keeps much better, and the fruit buds for the next year's crop are not injured. It is held in one hand and operated easily and rapidly. The other hand is free to hold the twigs, etc. Every cherry that is clipped goes into the cup and is secured. The picker has been thoroughly tested and gave good satisfaction. Sent postpaid on receipt of 75c. Two for $1.25. Money refunded if not satisfactory.

Elwood Tatum, Box C., West Branch, Iowa

Dominion Line
ROYAL MAIL STEAMSHIPS

MONTREAL TO LIVERPOOL

OTTAWA	June 8th
DOMINION	" 15th
KENSINGTON	" 22nd
VANCOUVER	" 26th
SOUTHWARK	" 29th

Above steamers all carry passengers.

MONTREAL TO BRISTOL
(Avonmouth Dock)

TURCOMAN	June 8th
ENGLISHMAN	" 22nd
MANXMAN	July 6th

Favorite Steamers for all kinds of perishable cargo having fan ventilation, cold storage, and cool air chamber.

GEORGE W. TORRANCE, Freight Agent . 28 Wellington St. E., TORONTO
M. A. OVEREND, J. W. WILKINSON . . . . . Travelling Freight Agents
DOMINION LINE—PORTLAND, Maine.
Mention The Canadian Horticulturist when writing.

THE INGERSOLL
VENEER BOTTOM FRUIT BASKET

The lightest and strongest Fruit Basket made. Made of two pieces of veneer, with double bottom, and bent upon a special patented machine. Not scored at bend, but bent without weakening the fibre of the wood. Stronger and more durable than any nailed package. Correspondence from fruit growers solicited.

The Ontario Fruit Package Company
Limited
INGERSOLL, ONTARIO

Mention The Canadian Horticulturist when writing

Cranberry Supply

A few cranberries are gathered in the Maritime Provinces, but they never get west of Montreal. The principal sources of supply for America are Cape Cod, in the east, and Mich., Wis., Minn. and Iowa in the west. Ontario draws its supplies exclusively from Cape Cod.

The garnishing of the Thanksgiving turkey is said to have created a demand which aided the upward tendency of prices. The American crop averages about 1,000,000 bus., and of those, 400,000 bus. are said to be required for Thanksgiving.

It was at Cape Cod that the cranberry was first cultivated, and soon came the discovery that in flavor the cultivated cranberry was far superior to its wild brother. Sand and peaty ground form the best soil for the cranberry, and instead of fertilizing, the grower is obliged to give the vines or bushes liberal coatings of sand.

The place where the cranberry grows is variously known as the marsh or the bog, from the fact that it must be low land arranged with a system of sluices similar to those used for the irrigation of arid land in the west. It costs not less than $300, and as high as $500 an acre, to get the bog ready Then 5 years must elapse before there is any crop sufficient to give a return. But after this, it is all profit, for the shrubs live and bear endlessly, getting better all the time.

Nothing could be simpler than planting cranberry bushes. A small handful of twigs is twisted together, and thrust deeply into the sand. They need no tending, but take root at once, and within a year send out runners. The planting is done in rows 8 or 10 inches apart. Gradually the space between the rows fills up, and soon the whole bog is one field of growing cranberries. Flooding the bog answers the dual purpose of giving the cranberries the moisture which is an essential part of its life and protecting it from the frosts of early autumn.

The old method of packing by hand is being superseded by the rocker scoops, with which 1 man can do the work of 25. The berries are cleaned and graded by machinery. At the end of their course there is a drop, and the sound, hard berries rebound into their bins, while the soft and wormy ones, lacking the necessary resilience, go to the waste box.

With careful weeding and watering, an acre will yield more than 100 bbls. of cranberries, and it has been calculated that in 8 years an acre ought to pay back in full the entire cost, leaving all that follows as clear profit.—*Canadian Grocer.*

Loyal Supporters

The success of THE CANADIAN HORTICULTURIST to date and the fact that we have been able to improve it so much lately has been due to the fact that each year, for a number of years, the officers of some 30 of the horticultural societies in Ontario have subscribed for THE CANADIAN HORTICULTURIST for all their members. To these men largely the credit for the fact that Canadians have been able to publish a horticultural magazine of their own has been due. Had they done like the officers of some of the other Ontario societies, and sent their money away for United States publications, we could not have continued to publish THE CANADIAN HORTICULTURIST.

Now that the tide has turned and that our circulation is increasing by leaps and bounds, it now being about 7,000 we feel that we should draw attention and give due recognition to those societies whose support has been so valuable to us, and who through THE CANADIAN HORTICULTURIST have been a benefit to the horticultural interests of Canada. All the following horticultural societies have co-operated with us in our efforts to improve THE CANADIAN HORTICULTURIST, and we heartily thank them for their support: Belleville, Brampton, Brantford, Cardinal, Cayuga, Clarksburg, Clinton, Cobourg, Cornwall, Elmira, Grimsby, Guelph, Hamilton, Hespeler, Kincardine, Lindsay, Midland, Mitchell, Napanee, Oakville, Orangeville, Owen Sound, Niagara Falls, Perth, Picton, Port Dover, Port Hope, Toronto, Seaforth, Simcoe, Stirling, St. Thomas, Smith's Falls, Tillsonburg, Vankleek Hill, Walkerton, Windsor, Waterloo, and Woodstock. The British Columbia, Quebec, Prince Edward Island, and Ontario Fruit Grower's Associations, and the Ontario Vegetable Growers' Association, also have helped greatly.

This year a number of societies who had never before taken THE CANADIAN HORTICULTURIST decided to distribute it to their members, and consequently, through their efforts, we are adding many new subscriptions to our rapidly growing mailing list. These societies, who are new with us this year, include the societies at Ottawa, St. Catharines, Bowmanville, Elora, Durham, Goderich, Peterboro, Galt, and Collingwood.

We try to make each issue of THE CANADIAN HORTICULTURIST better than the previous number. How far we have succeeded in this attempt will be easily recognized, if the last five issues are carefully compared. We want to continue bettering THE CANADIAN HORTICULTURIST, and already, with the hearty support tendered us by our subscriber friends, we feel that THE CANADIAN HORTICULTURIST is rapidly attaining a position well up in the world's horticultural journals. Our steady growth depends on the support of our friends, and we feel confident that every subscriber will help us to make Canada's only horticultural publication, THE CANADIAN HORTICULTURIST, the best and largest horticultural publication in the world.

These Spoil Your Crops.

Swift's Arsenate of Lead

Destroys all Leaf-Eating Insects

It is estimated that insects destroy ¼ to ⅓ the entire yield of farm and orchard produce. Swift's Arsenate of Lead is the best insecticide for the use of the farmer and orchardist, because it destroys all leaf-eating insects, sticks to the foliage in spite of rain and wind, and because it cannot burn or scorch the foliage no matter how strong a solution is used. Swift's Arsenate of Lead is used and recommended by leading fruit growers, truck farmers, horticulturists and shade tree owners.

Write for booklet giving valuable information for combating the Codling Moth, Potato Bug and other insect pests.

MERRIMAC CHEMICAL CO., 61 Broad St., Boston, Mass.

Canadian Agents—Spramotor Co., London, Ont. A. M. Bell & Co., Halifax, N.S.

ECONOMICAL and RELIABLE

Hot-House Heating Systems

"Sovereign" Hot Water Boilers and Steam Heaters may be relied upon to provide a continuous even temperature for heating hot-houses and conservatories.

The system works just as satisfactorily with water supplied from a tank on the premises as it does when connected with a city or town water service.

Catalogue and full particulars sent to any address.

Taylor-Forbes Company, Limited

Head Office and Works—GUELPH, ONT.

SELLING AGENTS

The Vulcan Iron Works, Winnipeg, Man.
Boyd, Burns & Company, Vancouver, B.C.
H. G. Rogers, St. John, N.B.

122 CRAIG STREET WEST, MONTREAL
1088 KING STREET WEST, TORONTO

Mention The Canadian Horticulturist when writing

ABSORBINE

Removes Bursal Enlargements, Thickened Tissues, Infiltrated Parts, and any Puff or Swelling. Cures Lameness, Allays Pain without laying the horse up. Does not blister, stain or remove the hair. $2.00 a bottle, delivered. Pamphlet 1-C free.

ABSORBINE, JR., for mankind, $1.00 bottle. Cures Synovitis, Weeping Sinew, Strains, Gouty or Rheumatic Deposits, reduces Varicose Veins, Varicocele, Hydrocele. Allays pain. Book free. Genuine mfd. only by

W. F. YOUNG, P.D.F., 194 Monmouth Street SPRINGFIELD, MASS.

Canadian Agents, Lyman, Sons & Co., Montreal

Imperial Bank
OF CANADA

Established 1875

Head Office, - Toronto

Capital Paid-up, $4,700,000.00
Rest, - - $4,700,000.00

Savings Department at all Branches

Interest allowed on deposits of One Dollar and upwards and credited four times a year.

1,000 a Month

Since January, 1907, the number of new and renewal subscriptions received for THE CANADIAN HORTICULTURIST has averaged considerably over 1,000 a month. This is a remarkable growth, and shows that, with the help of our friends, THE CANADIAN HORTICULTURIST is rapidly assuming a position in the front ranks of the world's horticultural publications. Our circulation has increased over 50 per cent. since the first of last September. Naturally we are much pleased because as our circulation increases our editorial columns wield greater power and because the larger number of subscribers we obtain, the better paper we can give you.

If you have a friend who is interested in amateur gardening, or fruit or vegetable growing, show them this copy of THE CANADIAN HORTICULTURIST, and ask them to subscribe. We allow our subscribers a generous commission on all new subscriptions they send us. If you desire we will send you any premium described in this issue. We want to have 10,000 subscriptions before January, 1908. With your help we can succeed. If every subscriber will do his and her part, we will soon be able to give you an even better paper than THE CANADIAN HORTICULTURIST is now. Will you not do your part by sending in at least one new subscription, and the names of such friends as you think would be interested in THE CANADIAN HORTICULTURIST?

THE CANADIAN HORTICULTURIST now represents the horticultural interests of the Dominion. It devotes its space to fruit and vegetable growing, and to amateur flower growing, and is the official organ of several provincial fruit growers' associations, and of the Ontario Vegetable Growers' Association. It is read by the members of over 40 horticultural societies, who take it for its valuable amateur flower and gardening features. With the steady growth of our circulation, and advertising, we are trying to give our readers a better paper each issue.

Flower Exhibit at Grimsby

On the evening of May 3, a novel exhibition was held by the Grimsby Horticultural Society. It was the time of the annual distribution to its members of shrubs and perennial plants. In order to increase the interest in the evening, the secretary, Mr. Linus Woolverton, visited the high and public schools the day previous, and stated that four prizes would be given each form, for the best and most tastefully arranged dish of wild flowers shown by the scholars.

The idea was taken up with great enthusiasm, and between four and six o'clock of the day of the exhibition, the children came pouring in with their collections, which were placed in proper sections on the tables. The flowers were chiefly hepaticas, dicentras, adder's tongues, trilliums and ferns. Some were arranged in baskets, and one was beautifully arranged as a cross.

In all, over 20 prizes were given the children, consisting of pot plants of various values in bloom. After a half-hour program by the children, they were dismissed and allowed to take home their flowers.

Then came the annual distribution to the members of the society. Each member received the following collection complete, no choice of articles being allowed, as this is found to be too troublesome and too expensive: 1 Exochorda grandiflora, 1 rose, Margaret Dickson, 1 helianthus, 1 Japanese iris, 1 shasta daisy, 1 delphinium, and 2 varieties anemone.

Two years ago, Hiram Walker & Sons of, Walkerville, went into the culture of mint. There was no duty at that time to protect the firm against importations from the U.S. The new tariff, however, places it on the dutiable list, and practically gives this firm control of the Canadian market.

Registered in U.S. Post Office

USED IN CANADA 23 YEARS **"SLUG SHOT"** USED FROM OCEAN TO OCEAN

A light, composite, fine powder, easily distributed either by duster, bellows, or in water by spraying. Thoroughly reliable in killing Currant Worms, Potato Bugs, Cabbage Worms, Lice, Slugs, Sow Bugs, etc., and it is also strongly impregnated with fungicides. ☞ Put up in Popular Packages at Popular Prices. Sold by Seed Dealers and Merchants in Ontario, Quebec and Manitoba.

For Pamphlets worth having on Bugs and Blights, send to

BENJAMIN HAMMOND FISHKILL-ON-HUDSON, N.Y.

Mention the Canadian Horticulturist when writing

Paper for Fruit Wrappers

¶ Are you doing an export fruit business? We supply paper—thin—cheap. Good for fruit wrappers. Tell us your wants and let us send you samples free.

TRADE MARK

WHITE TISSUE
MANILLA TISSUE
Specialties

CANADA PAPER CO. LIMITED
TORONTO

Mention The Canadian Horticulturist when writing

HOW TO PLAN THE HOME GROUNDS

By S. Parsons

For three new subscriptions to THE CANADIAN HORTICULTURIST, we will send the above book free, to any of our readers. The purpose of this book is to teach land owners and home builders how to beautify their grounds. The laying out and construction of roads and paths, lawns and flower gardens are fully treated upon, while the lists of the best trees, shrubs, hardy herbaceous plants, etc., serve as a valuable guide to the amateur landscape gardener.

The Canadian Horticulturist, Toronto, Ont.

REPRESENTATIVES WANTED

Now that the price of THE CANADIAN HORTICULTURIST has been reduced to 50 cents a year, it offers a great opportunity to canvassers. We will give a generous commission to all who will canvass for us. Write for particulars. Circulation Manager.

THE CANADIAN HORTICULTURIST
506-7-8 Manning Chambers, Toronto

A Library Free

Look over the list of books given below and check those you would like. Then look at our special offer that follows and start a little library for yourself. We will send any book immediately on receipt of price marked.

FOR THE FRUIT GROWER

"Fruit Harvesting, Storing, Marketing, etc.," F. A. Waugh, $1.00. "The Grape Culturist," A. S. Fuller, $1.50. "The Grape Grower's Guide," William Chorlton, 75 cents. "Peach Culture," James A. Fulton, $1.00. "Practical Fruit Grower," S. T. Maynard, 50 cents.

FLOWERS AND ORNAMENTAL PLANTS

"The Beautiful Flower Garden," F. Schuyler Mathews, 40 cents. "The Chrysanthemum," Arthur Herrington, 50 cents. "Garden Making," L. H. Bailey, $1.00. "Home Floriculture," E. E. Rexford, $1.00. "Pictorial Practical Gardening," Walter P. Wright, 75 cents. "The Window Flower Garden," Julius Heinrich, 50 cents. "Your Plants," James Sheehan, 40 cents.

MARKET GARDENING

"Asparagus," F. H. Hexamer, 50 cents. "Cabbage, Cauliflower and Allied Vegetables," C. L. Allen, 50 cents. "Gardening for Profit," Peter Henderson, $1.50. "Market Gardening and Farm Notes," Burnet Landreth, $1.00. "Vegetables Under Glass," Henry A. Dreer, 25 cents

OUR SPECIAL OFFER

We will give any of the above books to any of our subscribers who will send us one new subscription for each 25 cents on the price of the book. For example: "Garden Making," by L. H. Bailey, is sold for $1.00 a copy. We will give a copy of the book free for *four new* subscriptions. If the price of the book were $1.50, as in the case of "Gardening for Profit," by Peter Henderson, then we would send it free on receipt of *six new* subscriptions. For each 25 cents or fraction thereof, in the value of the book, send one *new* subscription.

This is a good way in which to secure a library on any horticultural subject. Besides the books we have named above, we have a large number of others. Our catalog will be mailed free to all who are interested.

Articles on Dairying

Those readers of THE CANADIAN HORTICULTURIST who are interested in dairying would do well to secure the four issues of *The Canadian Dairyman* for June. Each of these issues will be special and timely in their nature. The subjects that will be given prominence in them will be respectively: fertilizers for dairy farmers; transportation and cold storage; harvesting hay and barn construction. In connection with these subjects, articles and letters of a seasonable nature will appear in each issue. These will treat on all phases of dairy farming, and should prove of great value to dairy farmers.

The regular departments of the paper, including the cheese and creamery sections, will be particularly strong, and will include many articles and discussions on live topics. *The Canadian Dairyman* is the only dairy paper published in Canada. It is a weekly paper devoted to the interests of dairy farmers, creamerymen and cheese makers. The subscription price is one dollar a year. Sample copies can be secured by writing to The Dairyman Publishing Co., Toronto, mentioning that you saw this notice in THE CANADIAN HORTICULTURIST.

The Cobourg Horticultural Society is flourishing. It deserves the encouragement of all persons living in its vicinity, as it has done much to improve and beautify the town.

FOR SALE AND WANT ADVERTISEMENTS

Advertisements under this heading inserted at rate of one cent a word for each insertion, each figure, sign or single letter to count as one word, minimum cost, 25 cents, strictly cash in advance.

LANDSCAPE GARDENING—Plans drawn to scale for laying out and planting parks, cemeteries, public or private grounds. Work supervised C. Ernest Woolverton, landscape architect, Grimsby.

GARDENER seeks situation in private place. Fifteen years' experience under glass and outside. Age thirty. Good references. Box B, CANADIAN HORTICULTURIST.

Orchids Now is the time to place your orders for Spring delivery of freshly imported Orchids. **Our prices are very low, quality considered.** Also large stock of established Orchids on hand

CARILLO & BALDWIN
SECAUCUS, N.J., U.S.A.

Home Gardening for Beginners

Send us three new one year subscriptions to THE CANADIAN HORTICULTURIST, and we will forward you this valuable guide and practical adviser for novices in garden making. It is nicely bound in cloth, fully illustrated, and contains about 300 pages. The regular price is $1.00, but we will send it to any reader of THE CANADIAN HORTICULTURIST who will send us three new subscriptions.

The Canadian Horticulturist, Toronto, Ont.

A CHANCE FOR PUSHERS

We have a proposition to make to a few good workers who are willing to get out and hustle.

The Canadian Horticulturist
506-7-8 Manning Chambers, Toronto

THE HORTICULTURIST'S RULE BOOK

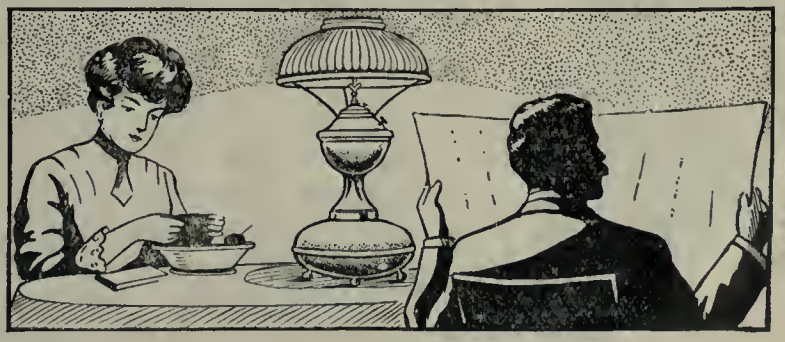
By L. H. Bailey

A compendium of useful information for fruit growers, truck gardeners, florists and others. The chapters on insecticides and fungicides, plant diseases, seed tables and planting tables, cements, glues, etc., will all be found exceedingly valuable to every intelligent horticulturist.

The regular price of the above book is 75 cents, but we will send it free to any of our readers who will send us three new subscriptions to THE CANADIAN HORTICULTURIST. Address

The Canadian Horticulturist, Toronto, Ont.

Save Your Eyes By Using a Beck-Iden Acetylene Lamp



Over ninety per cent of all eye troubles are due to the use of unnatural artificial lights,—

And any light which contains yellow or red rays is unnatural.

The only natural light is a pure white light, absolutely free from yellow or red rays.

This is the kind of light that the Beck-Iden Lamp gives.

The light produced by the Beck-Iden Lamp is the only artificial illuminant that resembles sunlight.

It's absolutely impossible for the Beck-Iden Lamp to explode.

Makes an ideal light for country homes.

For full descriptions, cost of light per hour, etc., write for booklet.

Beck-Iden Acetylene Lamp Co., 86 Notre Dame St. West, Montreal. 8

"PAGE FENCES WEAR BEST"

Made of High Carbon Wire—we'll prove it to you. COILED, not crimped. This makes it still stronger in service. It stays taut. Painted WHITE over heavy galvanizing—rust proof. Experienced dealers to erect it. Leads all in sales—as in merit. Get illustrated booklet and 1907 prices before buying. 209

THE PAGE WIRE FENCE COMPANY, LIMITED, Walkerville, Toronto, Montreal, St. John, Winnipeg

Windsor Dairy Salt

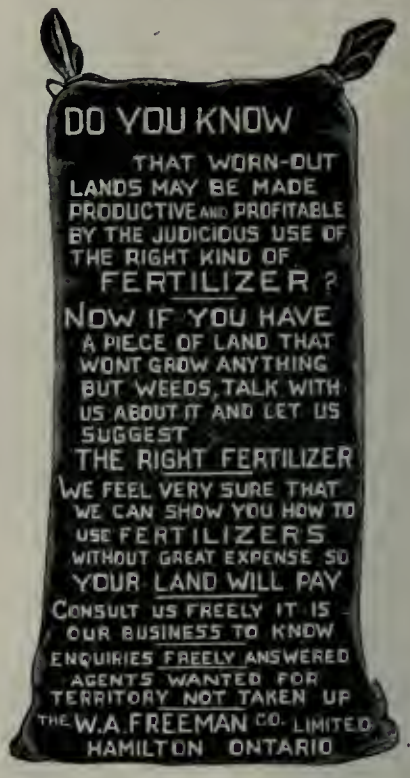
Watch Us Grow

For years the circulation of THE CANADIAN HORTICULTURIST was either below or hovered around the 4,000 mark. But now, with the hearty co-operation of our friends, it is experiencing a steady upward growth. For this issue, we will distribute over 8,000 copies. Of this number nearly 7,000 will be mailed to paid subscribers. The balance are specimen copies we are sending to our agents and to prospective subscribers whose names have been supplied us by our friends.

If you have not already sent us a list of your friends who would be interested in such a publication as THE CANADIAN HORTICULTURIST, we trust you will forget your bashfulness and send it in. We want to reach the 10,000 mark by the first of next year, and, with your help, we will do this.

Kindly send me THE HORTICULTURIST for one year. It is a fine paper. All fruit and vegetable growers should take it. It is cheap, and extra good. You would not get a paper like it in England for the money.—John Spencer, Toronto, Ont.

Profit Producing Fertilizers



FLOWER POTS

Send us your Spring order for pots, etc.; which will receive our prompt attention.

Try our pots for growing early tomato plants in.

SEND FOR PRICE LIST AND CATALOGUE

THE FOSTER POTTERY CO., LIMITED

Main St. West, Hamilton, Ont.

Mention The Canadian Horticulturist when writing

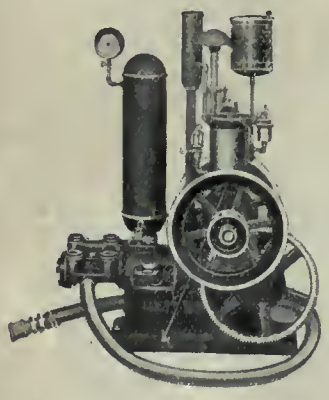
BOOKS FREE

For TWO new subscriptions to The Canadian Horticulturist, we will send free.

Book	Author	Regular Price
Asparagus	F. M. Heximer	50c.
Practical Fruit Grower	S. T. Maynard	50c.
A. B. C. of Strawberry Culture	Terry & Root	45c.
Spraying Crops	C. M. Weed	50c.
The Beautiful Flower Garden	F. Schuyler Mathews	40c.
Window Flower Garden	Julius Heinrich	50c.
Your Plants	James Sheehan	40c.

—ADDRESS—

The Canadian Horticulturist, Toronto, Canada



Every Canadian Horticulturist

and successful fruit grower knows that he must spray to get the best results. The question often is, "Which outfit will give me better satisfaction after I have bought it—this, or that ?" We have been making Spray Pumps for many years—outfits ranging in size from the power machine, operated by gasoline engine, down to little affairs that can be put into a bucket and carried about in the hand—about twenty different types in all. We make no sacrifice to quality in the construction of

DEMING SPRAYERS

Brass working parts, brass ball valves, durable packing and substantial, wearable construction throughout commend them to every grower who appreciates true economy. If you are troubled to know just what to select, perhaps we can help you. It's always been a part of our business to study the work of the grower and build our machines to suit his needs. Write us and we'll do all we can to help you out.

Our literature includes a catalogue of Spray Pumps and Supplies, "Words of Wisdom," "Spraying for Profit," and a number of small circulars that you will be glad to read. A postal will bring them to you.

The Deming Company

460 DEPOT ST.

SALEM, OHIO

Mention The Canadian Horticulturist when writing

The Canadian Horticulturist

Vol. XXX JULY, 1907 No. 7

The Fruit Industry of British Columbia

Maxwell Smith, Dominion Fruit Inspector, Vancouver

FRUIT growing in British Columbia, like the climatic and soil conditions in its various districts, is so diversified in character and of such importance that it is hardly possible to do the industry anything like justice in the space at our command, and when the reader has perused this article to the end, he must bear in mind that there still remains much to be said on the subject. A historical sketch would be of interest to many, but the wants of intending settlers or investors may be better served by a general outline of the present conditions and prospects of the industry.

Although it is only sixteen years since the first full carload of fruit was shipped out of British Columbia, progress has been fairly rapid and people are now beginning to realize something of its possibilities as a fruit-growing province In the season of 1904, the fruit crop of British Columbia was valued at $600,000 and the area under cultivation estimated at 14,000 acres.

In 1905 the area under fruit had been increased to 20,000 acres, and the total revenue derived therefrom was nearly one million dollars. In the same year something like $500,000 was expended in the purchase and improvement of fruit lands and the average price received for grade No. 1 apples from October 1, 1905, to March 31, 1906, was $1.27 per 40-lb. box, f.o.b. shipping point. The early varieties started out at $1 net, and during the latter part of February and March as high as $2 per box was being paid for strictly No. 1 in carload lots. The average prices of other fruits for the season of 1905 were: Pears, $1.38 per 40-lb. box; prunes and plums, 75 cents per 20-lb. box; peaches, $1.15 per 20-lb. box; strawberries, $2.30 per 24 basket crate; raspberries, $2.19 per 24 basket crate; blackberries, $2.40 per 24 basket crate; gooseberries, 5½ cents per lb.; crab apples, 2½ cents per lb.; tomatoes, 5½ cents per lb.; currants, 7 cents per lb.; cherries, 9 cents per lb.

Outside of the quantities consumed in our own cities the chief market for British Columbia fruit is the prairie provinces; a market which will always demand the best that the fruit-grower can produce and in ever-increasing quantities, so that British Columbia need have no fear, no matter how rapidly the industry develops, of an over-production of good, clean commercial varieties. The province is most favorably situated, in being contiguous to the great plains of the middle west, where fruit-growing on a commercial basis is not likely ever to be a success. That territory is sure to increase rapidly in population and the consumption of fruit will be enormous. It is a curious fact that the average family on the prairies consumes more fruit than do those of British Columbia and it is quite natural, also, to expect that as the farmers of Alberta, Saskatchewan and Manitoba succeed, within a comparatively few years, in laying by sufficient to keep them in comfort for the rest of their lives, they should look to British Columbia, with its congenial climate, magnificent scenery and tremendous, unexplored and undeveloped natural resources, as a place in which to spend their declining years.

For British Columbians

Allow me to congratulate you on the very marked improvement in THE CANADIAN HORTICULTURIST. Each number is better than the preceding one. The reduction in price should have the effect of placing it in the home of every lover of fruit and flowers.—W. J. Brandrith, Secretary-Treasurer—British Columbia Fruit Growers' Association.

There is little need for this province to spend money in trying to induce immigrants from other countries to come here and settle. The best immigration work that British Columbia can do is to develop the fruit-growing industry and to send large quantities of first-class fruit properly grown, harvested, packed and shipped into the great grain country east of the Rocky Mountains. This will judiciously advertise the province and bring our own people here as soon as they become tired of the more rigorous climate of the prairies.

The topography of the country from the standpoint of the fruit-grower may be better understood by a reference to the map which accompanies this article. The geological formations and climatic conditions render it necessary to divide the fruit-growing area of the province into nine general divisions.

No. 1 might be called the southwestern coast district, which includes the southern half of Vancouver Island, adjacent islands, and what is usually called the lower mainland. Here the production of small fruits may be said to be more successful, and consequently more profitable, than that of the tree fruits. Nevertheless, there are a number of very excellent varieties of apples, pears, plums, prunes and cherries which grow to perfection in this district, besides many different varieties of nuts, and, in especially favored spots, peaches, grapes, nectarines, apricots and other tender fruits.

In most parts of this district the mild character of the climate and the excessive moisture during the winter season are very favorable to the development of fungous diseases, and it is therefore necessary to practice persistent and systematic spraying of the orchards, clean cultivation of the soil, and a thorough system of under-drainage in order to get the most profitable results.

District No. 2 includes the valleys of the Upper Fraser, as far north as the fifty-second parallel, the main Thompson, the North Thompson, the Nicola and Bonaparte Rivers. Here there are practically none of the above-named difficulties to contend with, but the question of water to irrigate the lands is one requiring serious consideration, as without an abundant supply of water in the "dry belt" it is impossible to be sure of a crop every year. The prospective fruit-grower, however, does not have to contend with the heavy forests along these rivers that have to be encountered on the coast. The fruits grown are of the very highest quality and include all the varieties mentioned in connection with district No. 1. One of the largest

vineyards in the province is located near junction of Fraser and Thompson Rivers.

District No. 3 may be briefly described as the valleys of the Similkameen and its tributaries, portions of which are perhaps the most tropical of any part of British Columbia, and most favorable locations for the cultivation of grapes, peaches and other delicate fruits, wherever sufficient water for irrigation purposes is available.

No. 4 includes the districts surrounding Adams, Shuswap and Mabel Lakes and the valley of the Spallumcheen River. Here the natural rainfall is sufficient and splendid apples, pears, plums and cherries are successfully grown. The climatic conditions in this district resemble very much those of southern Ontario, and a fruit-grower with fixed ideas from the latter province might be more successful in this district than he would on irrigated lands. The timber is, generally speaking, light and the land rich.

No. 5 is the great Okanagan valley, stretching from Larkin southward to the international boundary. The vicinity of Kelowna in this valley contains the largest area of fruit lands of any one place in the province. Peaches are now being shipped in large quantities from the Okanagan, and all other northern fruits are successfully grown by the irrigation system. Improved modern methods are in general use by the fruit-growers in this district and the industry is perhaps more advanced than in any other part of British Columbia.

No. 6 is usually called the Boundary or Kettle River country, and although the smallest of all the districts named, the quality of the land is excellent and the climatic conditions all that could be desired. Where a sufficient water supply is obtainable, there is no trouble in producing fruit of the highest quality.

No. 7 is West Kootenay, an enormous fruit-growing district, where only a little progress has been made on the southern portion, but sufficient to indicate the possibilities and the superior quality of the fruit which may be raised along those lakes and streams. The neighborhood of Nelson and Kaslo has accomplished wonders in the past few years, but the shores of the Arrow lakes are practically untouched by the hand of the fruit-grower, and the valley of the Columbia, from the Big Bend south to Arrowhead, affords opportunities little dreamed of by many of those in search of fruit lands. In the greater part of this district, irrigation is only necessary in the very dry seasons.

District No. 8 is the country known as East Kootenay and is separated from No. 7 by a range of mountains. It is traversed by the Upper Kootenay River from the fifty-first degree of north latitude southward to the international boundary, and from Columbia and Windermere Lakes northward by the Upper Columbia River, to the Big Bend. In the southern portion of this district there are immense stretches of thinly-wooded lands suitable for fruit-growing purposes and the valley of the Upper Columbia has many choice locations for the enterprising fruit-grower. The lack of transportation facilities is a great hindrance to the development of the fruit lands of the Upper Columbia.

District No. 9 comprises the vast coast region including the Queen Charlotte Islands and the northern half of Vancouver Island, from Jervis Inlet to Portland Canal. There is little known of its capabilities, but undoubtedly it has a few surprises in store for the future. Though in small quantities as yet, apples, peaches and grapes have been successfully grown on the Skeena River. The first apple trees were planted at Hazelton in the spring of 1901 and fruited in the fall of 1904.

For a considerable distance inland from the west coast, there are numerous valleys and plateaus, which are well adapted to growing many of the hardier

varieties, though fewer in number than those suitable for the first-named district.

Notwithstanding the conditions and adaptabilities which may be in a general way characteristic of the large districts above mentioned, there are always peculiarities of soil and climate, soil moisture, atmospheric currents, etc., which must be taken into consideration, and intelligently utilized by the individual settler when choosing varieties to plant or deciding on methods of cultivation.

That the supply of water from mountain streams for irrigation purposes is limited, should always be borne in mind and in those portions of the province where irrigation is necessary, the prospective settler or investor should be exceedingly careful that a proper supply of water is obtainable, and that he secures a legal right to use it, when purchasing fruit lands. There are many of the so-called dry districts where the soil moisture, with proper cultivation, is quite sufficient to produce a full crop in an ordinary year, but there comes periodically, the extraordinary year when, without an artificial supply of water at the critical time, the whole crop may be lost. In the arid districts, it should be seen to that the right to a sufficient supply of irrigation water is obtained, whether it is needed every year or not.

Peach Plums that Weighed Six to a Pound
These were thinned at end of third week of growth
Photograph by B. T. Boies.

There are immense fertile tablelands along the Thompson, Columbia, Kootenay and Similkameen Rivers and the Kamloops, Okanagan, Upper and Lower Arrow and Kootenay Lakes, which can not be irrigated from the available mountain streams, but it may safely be predicted that some day in the not distant future, a genius will arise who will invent a comparatively cheap method of pumping the water from these large reservoirs up to the higher levels, and who then will venture to estimate the quantity of rare and luscious fruits which this province may be capable of producing, or the gratitude that future generations will lavish on the memory of the man who shall make the cultivation of these beautiful plateaus possible? Then will the glittering Okanagan Lake become a magnificent water highway, through the midst of densely populated stretches of orchard lands. On either shore will be one continuous line of superb villa homes, and all up and down those scenic galleries of luxurious gardens will dwell the kings and queens of husbandry in the happy performance of the first duties allotted to mankind.

By establishing high standards and the practice of high ideals, both in the quality of their products and business methods the fruit-growers of British Columbia should have a large share in building up the commercial character of the province which, like the golden beams of the summer twilight, shall shed its benign influence eastward over the great Dominion of Canada.

Section of British Columbia Prize Fruit Exhibit, London, England, 1907
Photograph furnished by courtesy of R. M. Palmer, Victoria.

Fruit Growing in the Okanagan Valley

H. Gordon, Vernon, British Columbia

THE success achieved within it by a number of old-established growers of fruit has gained a reputation for the Okanagan valley which attracts increasing numbers of land-seekers. The Okanagan valley is reached from Sicamous Junction on the main line of the Canadian Pacific Railway by a branch railroad which runs for 40 miles through the Spallumcheen valley and the northern end of the Okanagan valley to the head of Okanagan Lake. The valley averages three miles in width. The lake lies north and south, and is about eighty miles long. Parallel to this lake at its northern extremity lies the picturesque Long Lake twelve miles in extent, the valley of which runs north for thirty miles, and merges in the Okanagan valley at Kelowna. The Colsdtream (or White) valley joins the Okanagan valley from the east close to Vernon, which is situated a few miles from Okanagan Lake and two and a half miles from Long Lake.

DISTRICTS FOR FRUIT CULTURE

After leaving Sicamous the thriving little towns and fertile districts of Enderby and Armstrong deserve mention first. Here the rainfall appears to be sufficient in some parts to allow growth without irrigation. Vernon is the railway and agricultural centre of the valley. It lies 1,260 feet above sea level, and is surrounded by beautiful country and many orchards, as well as by much land adapted to fruit growing. The most striking feature is the uniform adaptability to fruit culture of large contiguous tracts of land. This is the favorite apple district, and seems to have an assured future. The chief varieties grown are Spitzenberg, Jonathan, Wagner, Wealthy, Northern Spy, McIntosh Red and a few others. Cox's Orange Pippin, acknowledged throughout the markets of Europe as the best flavored apple in cultivation, is being planted largely in the Coldstream district; this apple is somewhat fastidious in regard to soil and climate, but the growers have confidence that the local conditions are suitable.

Kelowna lies close to Okanagan Lake upon its eastern shore, and is the important centre of a growing district containing at present about 3,000 acres of orchard. The same varieties of apple are grown as in the Vernon district, but Yellow Newton Pippin is now popular. The orchard of Mr. T. W. Stirling is the chief of many good orchards in Kelowna, just as that of the Coldstream Estate holds the premier position in Vernon.

Harvesting Spys on Coldstream Estate
Twenty-five acres netted in 1905, $12,000. Photo by Boie

Sutton Beauty Apple Trees in Mr. J. L. Webster's Orchard, Vernon
Photograph furnished by Mr. Maxwell Smith

South of Kelowna, the black loam of the north is replaced generally by a more sandy soil. Several of the few old-established small orchards here have made a success of peach growing, and stimulated others to follow. It is estimated that about 100,000 peach trees have been planted in one settlement alone, that of Summerland, during the last two years; whilst its twin neighbor, Peachland, follows closely upon its example. Triumph, Alexander, Hale's Early and Yellow St. John, are amongst the leading varieties. The growers wisely supplement the growing of peaches with the less hazardous culture of the apple, and produce excellent fruit; but as yet have, of course, placed only a very small fraction on the market of the possible future annual output.

The prospects before these energetic and enterprising settlements are excellent, and they are making sturdy progress under the enthusiastic guidance of Mr. J. M. Robinson. Both places depend for communication only upon the lake steamer, and the settlement named Penticton, situated at the southern extremity of the lake, is at a similar disadvantage. The soil at Penticton resembles generally that of Summerland, and apples and peaches are planted in a similar manner. Thirty thousand acres are here in the hands of the Southern Okanagan Land Co., under the management of Mr. W. T. Stratford. In the old orchard of the original homestead of the property stands a cherry tree which produces fruit in a manner to rival the prolificness of a Kentish orchard. The poetic imagination of the Winnipeg estate agent has calculated on the basis of the doings of this tree the amount of profit derivable from an acre of cherry trees, humorously forgetting that it has taken thirty summers to bring this cherry to its present productive state. Cherries are being planted here as elsewhere throughout the valley, Bing, Lambert and Royal Anne being the most popular varieties. It is probable that Penticton will ultimately prove an important fruit section.

The last twelve months has seen the birth of several new centres designed to attract the fruit grower. Okanagan Centre and East Summerland are amongst the most promising of these, and offer attractions to those who desire to share in the development of a district from its beginning.

SUCCESSES

From this brief survey it is evident that the Okanagan valley promises to be an enormous fruit producer. The northern part is proved to be well adapted for apple culture; the southern half is probably a good peach country; throughout the whole valley, cherries, plums, prunes, and pears succeed in properly selected parts. The fruit pro-

duced hitherto, notably the Coldstream apples and the Summerland peaches, has attained a high standard. The apples from this valley obtained the highest awards at the Royal Horticultural Society's Show in 1906, the awards being for the attainment of a certain fixed standard; not as is erroneously supposed, in competition with exhibits from other parts of the world. This is encouraging, but the high price secured by the fruit in open market is even more satisfactory. The price of the best irrigible land at present is from $150 to $200 per acre. An article on the climate and irrigation will be published in another issue.

SETTLERS TO THE PROVINCE

The Vernon district is popular with settlers from England and eastern Canada, and the same may be said of Kelowna. The newer settlements lay themselves out to attract the ever increasing number of farmers in the prairie provinces and Manitoba who are turning further west in search of less rigorous conditions. Summerland and Peachland find great favor amongst settlers from the prairie provinces. Summerland attracts a particular class in virtue of the absence of a liquor license, and the establishment of a Baptist College in the newly-formed municipality.

EXPENSES OF LIVING

The cost of living is high to eastern

The Fruit House, Coldstream Estate
Photograph by H. Gordon

Canadian and English eyes, but is no more than in the west generally. The cost of caring for the orchard cannot be estimated with accuracy, but roughly speaking, about $5,000 are required for every ten acres of land to cover all the expenses of culture, planting, fencing, modest buildings, living, and so forth, until the orchard produces some income at the end of five or six years. The net profit to be expected from an orchard in full bearing has been estimated variously, but always without consideration of the important and inconstant personal factor, which renders all such estimates unreliable. It is, however, beyond question, that skill and industry may receive handsome reward in this pursuit. Experienced growers of vegetables and small fruits may utilize the spaces between the trees to obtain a return during the early years; a careful study of market and labor conditions is necessary before embarking on this branch of horticulture. The districts of Armstrong and Enderby excel in the production of some vegetables and strawberries.

The necessary common labor is scarce and dear. The question is becoming serious, and already orchards are showing evidence of neglect forced upon the owners by the difficulty of obtaining labor and by the high rate of wages.

MARKETS

The chief market for the produce of the valley lies in the northwest provinces and Manitoba. The favorable geographical situation of the province indicates the wide possibilities for the opening up of other markets. There can be little doubt that markets will be found for all fruit of good carrying and keeping quality.

TRANSPORTATION

The means of communication throughout the valley—railways, lake steamers and roads—are scarcely adequate to the needs of a rapidly growing and important agricultural and horticultural district. It is a truism that enterprise in these directions brings its own reward. There seems an excellent opening for the establishment of a system of light electric railways connecting the chief centres and giving them outlet north and south.

PESTS AND INJURIES

The provincial authorities exert themselves to prevent the incursion of pests and have so far succeeded in preventing the arrival of the San Jose Scale and other foreign scourges. But the boast that pests are entirely unknown can no longer be made; the usual troublesome and injurious ones are arising from within.

A British Columbia Home and Young Orchard near Victoria
Photograph furnished by R. M. Palmer

How British Columbia Fruit is Packed

B. T. Boies, Vernon, British Columbia

PRACTISING and demonstrating with the natural fruit is practically the only way fruit growers can learn to pack properly. The packing of a box of apples by a novice is something he will never forget. He soon sees that the placing of a few small specimens in the holes to fill the case is a great mistake. Do not use small stuff to fill in with. Call it a cull in the start, and save trouble and poor returns on a shipment of good fruit.

The California and Oregon method of packing apples was adopted at the Coldstream Ranch, in the Okanagan district of British Columbia, in 1900. The rip-rap pack, that any one can see by looking at a case of oranges or lemons as packed in California and on sale by merchants all over Canada, has been the most useful method. The solid pack, also, as used at Hood River, Oregon, is of great advantage for some sizes of fruit.

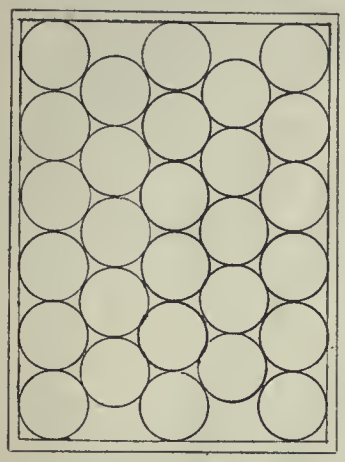
The former method is one that is easily learned, as the fruit, as packed, is sorted by the packer, who must have a quick eye at picking sizes, for when once a box of fruit has been started with a certain size, be it large, medium or small, that one particular size of apples, plums, pears, peaches or tomatoes will have to be followed up in each row or tier throughout the whole package. In a case of 126 size oranges (known thus because that number is always packed in a box), the oranges are sorted by machinery. The size is determined and placed, one at a time, starting at the end of the case next to the body, with one in each corner of the box and one in the space half way between. Next place two, one in each space. Now we have five. In the three spaces place, 1–1–1; next, –1–1–; next, 1–1–1. In the said orange box, we now have 13 oranges; this represents the first layer or tier. Beginning at the end next to the body again place –1–1–; this placement must be in the "holes" between the first three placed in the box. This is the start of the second tier. By placing one orange in each space in this tier, we get in twelve; tier number three has 13; tier number four has 12; tier number five has 13; thus, one-half the side is filled, making 13–12–13–12–13 = 63. Reverse ends, lay out as before, we should again have 63, completing the box of 126.

Follow this same rule with the packing of apples of certain sizes, laying three, then two, and so forth, beginning the second tier with two-three, two-three; thus, the fruit does not lay on direct top of specimen below it, but in the hollow between. See the diagrams.

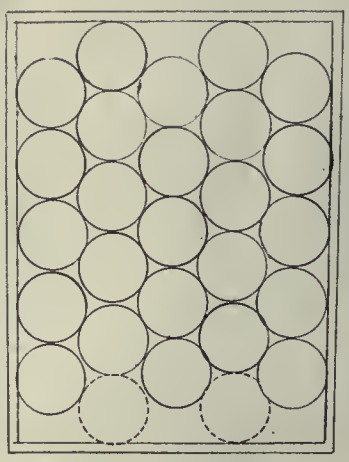
These show a four-tier, rip-rap, 110-size of apple. The last three or two apples placed in the row will always bind the whole tier firmly. Perhaps, a slightly larger apple will be necessary to make it more secure with no "rattle," "slack," or rolling. After a packer becomes accustomed to the "sizing," he soon sees where, if he has used too small an apple, or too large, it can be changed and one to fit the hole will ratify matters. Thus, with packing pears with paper, by the placing of the first three in the end of case, or the first four, then three, the fruit locks itself in very readily.

I have packed the Fameuse and the Alexander in the Canadian standard box while demonstrating near Montreal, and turned the box upside-down, and back again, with not an apple falling out of the box. Other kinds can be done likewise.

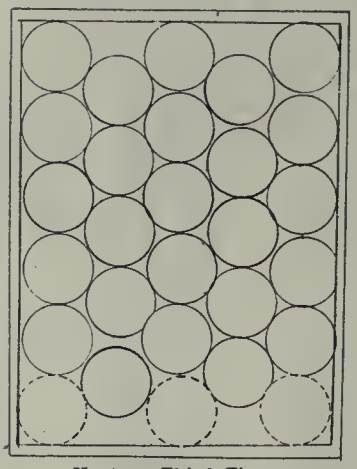
Some growers say that the apples should be packed "solid"—one on direct top of another. In reply, I would say there are too many sizes of apples to allow the packer to follow this rule. Apples can be packed in boxes either flat on the side or diagonal, if when so packed they completely fill the box, and have a half to three-quarters of an



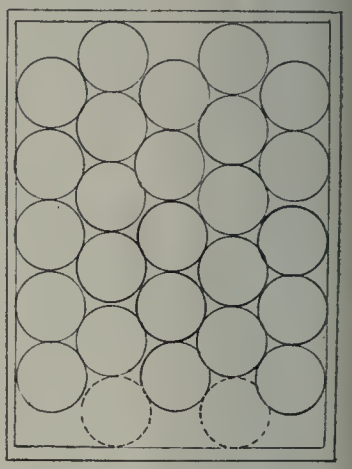
First Tier of Apples in Box



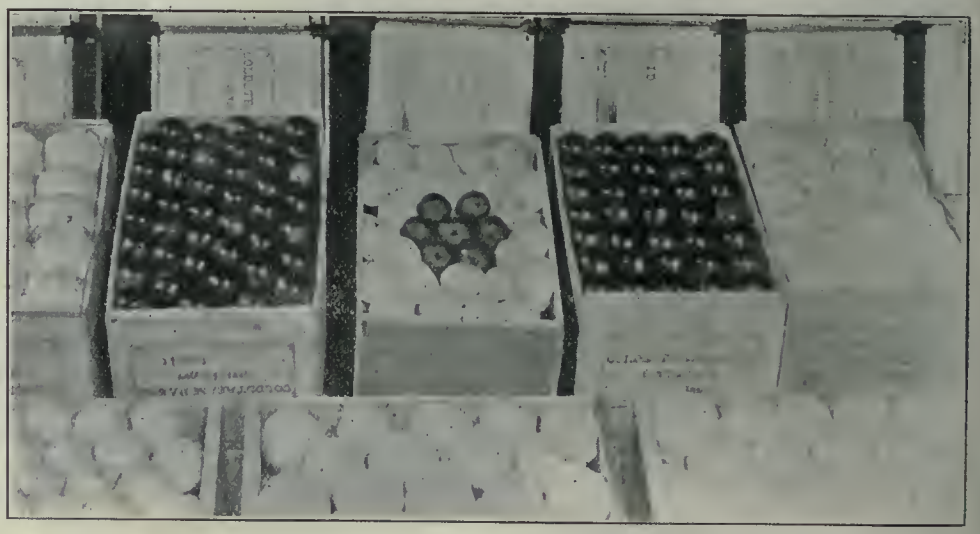
Second Tier in Same Box



Next or Third Tier



Top or Fourth Tier



British Columbia Fruit in Boxes for Export

A Variety of Fruits Grown and Packed in British Columbia
Photograph furnished by Mr. James Grant, Victoria

apple above the box. The top or bottom (when properly packed, either can be opened for display), pressed and then nailed, gives the "belly" or flare. This should never appear on the side of the box, as a box of apples should always be laid on the side for handling and shipping. Care in this matter pays.

In packing peaches, the rip-rap-packed box is the only proper way. All British Columbia peaches are packed the same as those in California; likewise, pears, plums and cherries (ten-pound flat box, or with cartons). Some hurry-up shippers at times use the four-basket (tin top) twenty-pound crate for cherries, plums, prunes and tomatoes, putting the fruit in roughly and jolting well down; but the greatest proportion of this delicate fruit is handled on the green side and quite firm, using paper between all fruit, and thereby insuring the best prices and no chance of loss. The better the packing the greater the reward.

Care of Gladiolus Flowers

H. H. Groff, Simcoe, Ontario

As our whole interest in the gladiolus centres in the beautiful flowers—which for beauty and diversity in the whole range of color have no equals in horticulture, and their durability when cut for table and other decorative purposes is unexcelled in their season—it is well to be fully informed as to the treatment that will ensure the best results.

Cut the spike when the first flower opens and place in water without overcrowding. Remove the terminal buds soon, as this checks stalk development and throws the strength into the larger and earlier maturing flowers The end of the stalk should be shortened and the water renewed daily with frequent cleansing of the vases. In shortening the stalk, cut diagonally, to insure free absorption of water by the spike without the contamination and obstruction, caused by sediment, if cut at a right angle.

The fact that blooming the spikes in the shade of a room or piazza modifies the field colors, from bright shades and tints to delicate flushes and shadings, and also reduces the latter types to the faintest tinge of color or white, is well known to experienced growers. The advent of my new hybrids producing the most intense and deep shades of violet, purple, crimson and scarlet, hitherto unknown, as well as new yellows and other bright colors, makes it desirable that these brilliant combinations be preserved when the spikes are cut for decorative purposes.

To ensure this most desirable result, place the vases of these highly colored types in the early morning sun for an hour or two daily, preferably after renovation and renewal of the water. This practice will also enable the retention and normal presentation of the original delicate tints and shadings referred to in the preceding paragraph, if so desired.

As it takes about three days after cutting to bring the spikes into strong blooming condition, this should be allowed for in advance of the date of intended use. The spikes can be shipped a thousand miles by standing them on end in suitable baskets or boxes. On arrival, cut off the end of the stalk, and remove the terminal buds before placing in water; they will then revive quickly and with proper care give pleasure for a week or more.

One of the causes of the popularity of the gladiolus as a decorative flower, is the fact that it has no perfume, as there are few flowers used for this purpose that are not distasteful to some one—particularly in closed rooms—either from personal preference or painful association. Where the pollen proves irritating to the tissues of the respiratory organs, as in the case of hay fever subjects, the anthers may be easily pinched out during the daily renovation, when the faded florets are also removed. This removal of the anthers is desirable in the highly colored types referred to, where the shed pollen dulls the brilliancy of the petals on which it may fall.

The pink-flowered dogwood is a gem among small trees. It is one of the most beautiful shrubs of spring.

Late Spring and Early Summer Border Plants

Wm. Hunt, Ontario Agricultural College, Guelph

THIS class of plants has not received the attention from many of our flower lovers that their beauty and usefulness most deservedly entitle them to. The long spell of triple-season

The Garden Primrose

weather—sometimes winter, sometimes spring, intermingled with a few days of quite summer weather—that we have experienced during the last two months, has brought out more prominently than usual the usefulness of many varieties of late spring and early summer flowering plants.

After the gay galaxy of beauty in the border that the spring flowering bulbs, such as tulips, hyacinths, narcissi and so forth, give us, there is too often in many flower borders a period of comparative dullness before the better known and later summer flowering occupants of the border, such as iris, peonies, delphiniums, campanulas, and other varieties, help to brighten it up.

Spring bedding, as it is termed in England, where the cool spring season often extends from the end of January until early June, gives ample scope for the exercise of the use of this class of early decorative plants. With our usually short, uncertain spring weather, this system of spring bedding cannot, as a rule, be successfully carried out. Although we may not be able to have whole beds or borders entirely of these plants, such as pansy, violas, primulas, Phlox subulata, forget-me-nots, Alyssum saxatile, and others of a like nature, many of them can be used very successfully in an ordinary perennial or mixed flower border with marked success and effectiveness.

CORYDALIS NOBILIS

This perfectly hardy and showy border plant, a native of the frozen north of Siberia, should be in every collection. Its long, drooping racemes of pale yellow flowers, together with its attractive and graceful fernlike foliage, make it a pleasing and showy object in the border in April or early in May. Very early spring or early in autumn is the best time to transplant this Corydalis.

Corydalis bulbosa is another variety very useful as an early flowering plant. This, as its name implies, is a bulbous-rooted variety, very useful as a border or for rockeries. The bulbs should be planted early in autumn.

PHLOX SUBULATA (MOSS PINK)

The several varieties of these beautiful dwarf little plants, with their showy, compact masses of pink, reddish purple, and lilac flowers, make them indispensable amongst our low-growing border and rockery plants. The varieties rosea, atro-purpurea, and lilacina are the most effective and hardy for border work, the different shades of color being indicated in the specific varieties mentioned. A mass of these showy little plants makes a very conspicuous spot in a border. The best time to plant or divide the clumps of this plant is as soon as they are out of flower. Avoid planting them on low ground where water lies during winter. Shade and water after planting for a while.

Iceland Poppies in Border at Ontario Agricultural College

Photograph by E. J. Zavitz

FORGET-ME-NOT

Myosotis grandiflora (M. sylvatica) is the forget-me-not that succeeds best in gardens. The forget-me-not succeeds best in light soil and in partial shade, although they will give good results in the open border. Seed sown in spring or early summer will give flowering results the following year. When once established it seeds and renews itself every year, if the situation suits it. The blue type is the showiest, although the pink and white varieties are very pretty. No border should be without a clump of these appealingly pretty, sentimental, spring and early summer flowers.

PRIMULA POLYANTHA (GARDEN PRIMROSE)

Primroses delight in a rather moist, partially shaded position. A hot, sunny position does not suit them. They grow readily from seeds or division. The best time to divide the plants is as soon as they are out of flower. Water and shade them carefully for a week or so after planting. Seed sown in spring or early summer will produce flowering plants the following season. There are a great variety of colors to be had in garden primroses, white, yellow, lilac, and brown being the prevailing colors and shades. Garden primulas should be seen in every flower garden.

PRIMULA OFFICINALIS (ENGLISH COWSLIP)

It is quite hardy as a rule, and when treated as described for other primulas, makes a pretty border plant. In very exposed borders or in the northern sections of the province a light winter protection may be required. Some light rubbish, such as old raspberry canes, or a few small pieces of brushwood with a few leaves or some strawy manure lightly placed over the plants about middle of November, or a few pine boughs placed

Forget-Me-Nots

over the plants until spring, makes a good winter protection for primulas.

Primula Cashmeriana is a very beautiful early flowering variety, its pale lavender blue flowers being very beautiful in early spring. Unfortunately,

this variety is more tender than the ordinary garden primula or primrose of the polyantha type.

Primula vulgaris, the well-known English hedge primrose, is also tender and requires protection in winter. Some new and strong growing types of the polyantha primrose have been introduced recently that are very effective as border plants, and are quite hardy in most sections of Ontario.

PAPAVER NUDICAULE (ICELAND POPPY)

Plants of this pretty little hardy poppy that have wintered over will also give a fine display of its pretty shell-like flowers. This is one of the best of the poppy family as a cut flower, and is very effective for that purpose. Seed sown in spring and at different times during the summer will give successive batches of bloom the following summer. The Iceland poppy is one of our best border plants, especially in light soils.

The plants mentioned are only a few of the easily grown border plants that the flower-lover can have to brighten up the border after the gay, spring-flowering bulbs have dropped their showy petals or have become dulled and dimmed by the approaching heat and drought of summer. The pretty little bunch of tufted pansy, *Viola cornuta*, *Alyssum saxatile*, and some of the dwarf early flowering veronicas or speedwells, not forgetting the garden daisies, *Bellis perennis*, are quite hardy in most parts of Ontario. These and others could be mentioned, but more about them, if all is well, in a future number. In the meantime prepare now so as to have some of these early flowering beauties in the border for the next and successive spring and early summer seasons.

Lawn and Garden Hints for July

CONSTANT stirring of the surface soil in the flower garden will not only destroy weeds, but also will help the growth of all kinds of plants. Deep working of the soil is not necessary. A strong rake or a light scuffle hoe will do the work easily and well.

Do not forget to stake and tie all plants that require support. Many fine plants have come to grief because a stake could not be found handily just when the plant needed tying. Tie with soft twine so as to prevent damage from friction. Use neat stakes.

Unless you are desirous of saving seed, keep all decayed flowers picked off regularly. They are not only unsightly, but also exhaust the vitality of the plant.

Late in July or early in August is usually the best time for planting new clumps of garden lilies or for transplanting and dividing the old clumps. Almost all kinds of lilies, however, dislike transplanting or moving very often. It should be done only when necessary from overcrowding. Lilies do not like manure placed near their roots when transplanting. A mulching of strawy manure on the surface of the ground around them is much more beneficial than if placed around the roots underground.

A mulching of strawy manure, or of lawn grass clippings spread thinly around aster plants, will help them to develop their flowers in the hot weather. The plants do not require as frequent or copious supplies of water when the soil around them is well shaded. This mulching process is also beneficial to newly planted fruit or shade trees during the hot months of July and August.

See that the pansy bed receives plenty of water. Keep the blossoms well picked, so that no seed can form and to insure a constant supply of bloom until the cold weather.

One of the most attractive features

A Summer Garden on Toronto Island

This illustrates the summer home of Dr. Sheard, Medical Health Officer for Toronto. The garden was made on barren sand

of summer decoration is the verandah box. They do not cost much. Any amateur can make, or have made cheaply, a box of the desired length with plenty of depth and width. Place them on the verandah and plant with nasturtiums and single petunias. Add a few geraniums and two or three German ivys. The plants need plenty of water when they are growing vigorously. For shaded verandahs, use begonias and coleus.

Two or three prunings of privet hedge make the best hedges. The first should be given when the new growth is six to eight inches in length, in June; the second, when shoots are again of same length, and the last just before growth finally ceases.

THE KITCHEN GARDEN

Keep down the weeds in the vegetable garden. A loose earth mulching on top of the soil around all growing crops is a necessity in hot weather. It prevents evaporation of moisture from the soil. It is best to water all newly-planted plants as soon as the work is done. It settles the earth around the roots and gives them a fair start. If you have a constant water supply available, continue the watering. It is better to give plenty of water every few days than a little each day. The best time for amateurs to apply the water is at night.

Plenty of manure water for young celery plants will amply repay for the trouble in maintaining a supply constantly on hand. It is hard to overfeed or over-water celery plants. Celery should be planted early in July if wanted for fall use, although fairly good celery sometimes can be had by planting as late as the first week in August. In the amateur garden it is advisable during the hot days of July and August to place a twelve-inch board over the celery plants for a few hours in the middle of the day.

There is time yet to put in a row or two of dwarf beans and some corn for late use. Sow the early varieties of corn, such as Early Cory and Country Gentleman, as these mature quickly. The best kind of beans to plant now are Early Six Weeks and Early Valentine.

Late cabbage and cauliflower should be planted at once, if not already attended to. If you have a vacant spot in the garden, utilize it by setting out these plants.

Potatoes should be sprayed once or twice during the season, when in full growth, with Bordeaux mixture and Paris green. This will not only keep down the beetles or "potato bugs," but also will destroy the fungi that produce rot and blight. For this purpose, use the ingredients in the following proportions: Lime, four pounds; blue vitriol, four pounds; and water, forty gallons. When this mixture is prepared, add to it eight ounces of Paris green. Apply when the vines are dry. Should you not care to make the Bordeaux mixture, use Paris green alone.

If really good leeks are wanted, they must be planted in a trench so that the earth may be drawn around them conveniently for the purpose of blanching. Leeks grown in this way are considered by many to be far superior to onions when boiled.

The best kinds of lettuce for hot weather are the black seeded varieties. Shade the lettuce with an inexpensive home-made screen.

Sow some early variety of peas in a cool, partially shaded spot for September use. Sow on July 1 and 15.

Cucumbers for pickles may be sown this month. Sow Eclipse beet for fall use; it should mature in 50 days.

Do you know the pleasure of having winter radishes? Sow the Half-long Black Spanish winter radish once before July 15. The roots become seven

Cattleya Maxima

to ten inches long and, after being stored in a dry cellar, require two or three months to mature. The flesh is white, mild and crisp.

AMONG THE FRUITS

The highest quality in raspberries and blackberries is secured by not picking the fruit too early. Growers who produce these fruits for market are compelled to pick them rather early to insure their safe arrival. The amateur gardener can afford to allow the fruits to remain on the canes until well matured. Blackberries particularly are delicious when left on the bush until they are thoroughly ripened.

During the first season in the new patch of brambles the essential thing to do is to provide moisture and to promote a vigorous growth. This is best done by means of tillage. Bushes planted around the borders of a garden may be mulched with straw or strawy manure often with excellent results, but, whenever practicable, tillage is generally advisable. Cultivate shallow for all brambles are shallow rooted; deep cultivation increases suckering. It is best to stop tillage after the first of August to ripen the canes.

When the blackberry and black raspberry shoots are about eighteen inches high, pinch off the tips so as to branch them. These bear more fruit than long, unbranched canes; are easier to handle and winter-kill less.

In the home garden, strawberries may be fruited twice or three times, but on rich soil, with extra good care, the first crop may be very heavy. In that case, it is generally best to plow down the patch as soon as fruited. A new lot of plants should now be coming on to take the place of the old bed. If your new strawberry plants are still blooming, remove the blossoms at once so as to allow the plant energy to go towards the production of runners and new plants instead of fruit.

Cattleya Maxima

Fred. J. Goode, Toronto

The subject of the accompanying illustration is an excellent example of the free-flowering type of orchidaceous plants. Although introduced years ago, it does not seem to have attracted the attention of commercial and private growers to whom it should appeal through its extraordinary free-flowering qualities, and easy culture.

The bulbs of this variety often exceed eighteen inches in length, slightly furrowed and club-shaped, surmounted by one and sometimes two oblong submarginate leaves. These bulbs often produce spikes of from five to eight flowers. The sepals and petals are blush-rose. The lip is variegated with dark crimson veins.

Individual flowers often measure five inches across and last in perfection from two to three weeks. The flowers are thrown well above the plant on good long stems, the stem of each flower being long enough from the main stem to give the plant a most graceful appearance and make it a valuable plant for exhibition and cut flower purposes.

This variety of Cattleya succeeds better in a little higher temperature than most Cattleyas, but, in all other respects, the treatment should be the same. Overhead-syringing twice daily is far more beneficial than too much root watering. These plants often throw two strong growths from the same lead in one season.

The pink-flowered dogwood is a gem among small trees. It is one of the most beautiful shrubs of spring.

The Chrysanthemum Flowered Sunflower deserves a prominent place in the garden. The magnificent flowers are six to eight inches in diameter, densely double and show no centre.—N. S. Dunlop, Floral Dept. C.P.R.

The Peony of Value for West

C. D. Harrison, Peony Specialist, York, Nebraska

IN recent years great strides have been made in the development of the peony. All through eastern and western Canada it is a brilliant success. At the Brandon Experiment Station, Manitoba, one clump had sixty fine blooms, and the plants never were mulched or manured. Most cheering reports come also from Saskatchewan and Alberta. It is encouraging to know that one of the most glorious, transcendently beautiful and fragrant of flowers will grow anywhere that it is planted or horse radish can thrive. In fact, peony blooms are much finer in Canada than in Kansas or Nebraska, because the air is cooler. After years of careful testing, however, the writer finds a great difference in the hardiness of the different varieties. The new manual has thus classified them: The Indolent, the Sensitive, and the Free-blooming. [Note—Mention will be made of this manual in the August issue.—Editor].

Those of you that have peonies, just watch them. Some kinds never seem to bloom. They give all their vigor to foliage. Others are nipped in the bud, and you will find a little black ball where there should be a flower. These are the sensitive ones. There will be others that "glory in tribulation"; they care nothing for the sudden changes and severity of the weather or the untimely frosts.

Most of the kinds sent out by James Kelway & Son, of England, are very sensitive. I have had several kinds from them which have not given a bloom in five years. Now, as we raise peonies for flowers, we cannot give them a place if they cannot bloom in several years.

Some sorts bloom on the least provocation. We had a bad spring, some days ninety-five degrees above, and in a day or two the ground would be frozen, and yet some kinds of peonies have not paid the least attention to such trying ordeals. One of the best and hardiest is Golden Harvest, which originated in Nebraska. The new manual gives a fair description of it. I never knew it to fail, and reports from Manitoba speak in the highest praise of it. The resplendent Baroness Schroder blooms abundantly. L'Esperence is a glorious fragrant pink, one of the very earliest; this never fails. There are many others that can be relied on. There are, however, 2,000 named sorts, many of rare beauty, but only about one-fourth of them can be depended on for annual blooming. There are no more satisfactory plants raised than peonies.

At present there are many people engaged in raising new varieties. This is a most fascinating work. The writer has 25,000 on the way, and among them there will be some of rare merit. Anyone can engage in the business and reap much profit and pleasure. Millions are needed for the north and the vast northwest. When it is known that the finest of all the flowers finds a paradise in all that region it will give a zest to the business. Men, women and children, with but little experience, can engage in the work.

Care of Dahlias

The later that dahlias are planted, the greater the chance of freedom from injury by the dahlia "bug." Late planted dahlias produce the best blossoms. They do best in cool, moist seasons. In dry seasons the striped dahlia "bug" is most active. It is difficult to combat, but when conditions are unfavorable for it (that is, cool, moist weather with plants started late in the season) it will not do much damage.

Dahlias are gross feeders. If you desire fine flowers, you must not allow the plants to suffer from want of water or stimulants. Excellent fertilizing material for dahlias is liquid manure.

In most home gardens dahlia plants are allowed to reach their full height and are tied to stakes. To grow them without stakes, pinch out the centre of each plant after it makes two or three joints. The lateral branches thereby will be made to start near the ground.

When flowering time arrives, a little disbudding must be done. The buds usually are produced in threes. As the centre one generally makes the best flowers, it is wise to pinch the other two off. This will result in a much better bloom.

A View of Midsummer Comfort and Beauty

To Keep Cut Flowers Fresh

Those who wish to make their cut flowers last the longest, so that they can get the most pleasure out of them, should be careful to give them a little extra attention in order to prevent their losing their beauty too soon. This is especially desirable during the winter where flowers have to be bought at a high price from a florist, or some patient home-grower has spent much time and care in bringing her plants into bloom.

The simplest way to keep blossoms fresh: see that the ends of the stems are cut with a sharp knife in a clean, even cut, and to clip off a little more from the ends of each just before giving the flowers fresh water every morning. Do not let the flowers be too crowded in the vase and keep them if possible where they will not be in direct sunshine, nor too near the heat from the register or radiator.

At night set the vase containing the flowers in a vessel of water and place in a cool place. Some persons take the

flowers from the vase and put in bowls of water where the stems will be covered nearly to the blossom, and cover with newspapers and set out on the window-sill, unless it should be cold enough to freeze the blossoms, when they are placed inside a cool place.

Walks and Driveways

When planning new grounds, walks and driveways must be taken into consideration. On large grounds they should be used to link the more important features of the landscape together, and to serve as entrances. They have an effect on the appearance of the place and, as they are not beautiful in themselves, they should be as few as possible. The general idea should be simplicity and directness.

On grounds of considerable extent, the walks and driveways should be laid out in moderate curves, not winding or twisting, but gracefully curving from the point of entrance to the house. The points of entrance are better located at the sides. On small city lots, where space is limited, we are restricted almost to straight lines, but occasional slight curves may be employed with effect.

Golden-leaved California privet is deemed hard to keep in its golden habit, because of the green shoots it will make. If these green shoots are persistently cut away as soon as they form, there is no trouble in keeping the shrub to its desired character; and it is highly ornamental.

Styrax Japonica

Roderick Cameron, Niagara Falls, Ont.

The beautiful shrub or small tree, *Styrax Japonica*, blooms in June. It is a native of China and Japan, from where we get, and have got, many beautiful and valuable plants. This is not, by any means, the least valuable, where it proves to be hardy. *Styrax Japonica* is a handsome shrub of very graceful habit. It is the hardiest of its class; and no doubt it will be a surprise to many to know that this very beautiful plant thrives, perhaps, better in this locality than in Japan. I believe that it will thrive still further north than Niagara Falls—it should get a fair trial anyway. The best authority in the United States says that it is hardy as far north as Massachusetts in sheltered situations.

The buds, before they open, resemble very much a white fuchsia bell in form. They are a beautiful waxy white color when open, except the stamens, which are yellow. The flowers are very fragrant, of a pleasing spicy nature. I have few plants in the park that call for more praise from me than *Styrax Japonica*.

A Beautiful Rose Bed Backed by Vines at Residence of Dr. D. G. Storms, Hamilton, Ont.

Saving Seed of Sweet Peas

Edwin Utley, Toronto

Sweet peas are very sportive. They occasionally will send out a double stem with 8 to 15 flowers upon it, but this appears to be a deformity. Seed saved from such flowers do not repeat and, in fact, generally produce inferior flowers.

If you desire to save your own seed, do not try to get flowers and seeds from the same vine. Pick out the sturdiest vines to save seed from. Cut the poorer flowers, leaving the best, with three or four flowers to a stem to seed. When ripe pick the pods which will contain about seven seeds each. Those at each end of the pod will be smaller than the rest, discard these, and save only the big, fat seeds for next year, and you will probably get improved plants and flowers from them. By this method, I have been able to get many flowers with sturdy stems 16 and 17 inches long. The earliest flowers are the best to save seeds from, as those which mature in hot weather do not seem to have the same vitality and strength.

If your garden is very shady you cannot grow fine sweet peas. They thrive best with plenty of air and sunlight. Many of the orange and red varieties burn or discolor somewhat easily under a hot sun; hence, if you want to have pure colors for exhibition, it is a good plan to throw a few yards of cheese cloth over the vines when the sun is striking them strongly.

Growing Squash

A. McMeans, O.A.C., Guelph, Ont.

The best varieties of squash for market purposes are Summer Crookneck, Delicious, Marblehead and Hubbard. Many growers make the mistake of leaving the Crookneck until the shell gets hard; whereas, if they would cut them just as the shell is beginning to harden, or when they can be indented easily by pressing on them with the thumb, the squash would be far more acceptable to the consumer. At that stage they can be taken and washed, and cut shell and all for cooking. A trial will convince any person that this practice is superior.

Marblehead is not grown enough. It has a grayish-white skin with a nearly smooth surface and is somewhat smaller in size than the Hubbard; the flesh is as dry, as thick and as good, and the season of ripening is about the same.

Delicious is a variety that should be grown when quality is required rather than yield. It is a fall and winter variety, small to medium in size, with thick, dry flesh of excellent quality.

If the amateur wants a variety of squash to cover as much of the season as possible, he should try Perfect Gem. Another variety of excellent flavor is Fordhook, but it is too small to grow for market.

A shallow fountain or tank which affords a drinking and bathing place for birds throughout the summer will do much to encourage their presence.

Remember that a vigorous growth of clover in a lawn is a good thing because it enriches the soil in nitrogen and humus, rendering it in the very best condition for a succeeding crop of grass.

Some Fungous and Bacterial Diseases of the Potato

Douglas Weir, B.S.A., Biological Department, Macdonald College

THE potato crop of the past few years has been very unsatisfactory in Canada. The mischief caused by certain fungi and bacterial diseases seems to have increased, supplementing the already extensive ravages of the Colorado potato bettle. In Ontario during the season of 1906, the losses caused by diseases of this kind were so marked, that it was impossible, in certain districts, to supply even the local markets, and potatoes had to be imported.

It may be useful to describe briefly some of the pathological aspects of these sources of injury to the potato, as the gravity of the evil sufficiently warrants every rational effort to mitigate it. We subjoin some notes on the early blight, the late blight, the potato scab, and the fungous and bacterial wet rots.

THE EARLY BLIGHT

The Potato Leaf Blight or Early Blight, *Alternaria solani*, was especially widespread and destructive. The disease attacked the leaves and green shoots of the plant, spreading rapidly and checking the growth of the tubers. The first indication of the disease was the appearance of brownish spots on the leaves about the time of blossoming, resulting in the characteristic curling and withering of these parts, in the destruction of the stem, and later, of the young tubers themselves.

It will be readily appreciated that an early destruction of the leaves must of necessity result in greatly diminishing the size of the tubers, for in the absence of leaves the highly elaborated plant food so essential to growth cannot be obtained.

Although the early blight is most frequently observed about the time of blossoming, it may also attack plants at an earlier stage, and not uncommonly has been observed on plants scarcely six inches high.

The common flea-beetle is believed to distribute this fungus extensively. It establishes excellent places for infection, by burrowing holes in the leaves, and may even carry the spores along with it from diseased plants. The remedial measures are the same as suggested for late blight.

THE LATE BLIGHT

The Late Blight or Fungus Rot, *Phytophthora infestans*, has caused even greater loss than the early blight. Moist warm weather is especially favorable to its development, and under such conditions it spreads with singular rapidity. During the warmer, humid weather of July, 1906, which prevailed in many sections, the disease spread so suddenly that fields, appearing healthy and green one day, became withered and blackened the next.

The infected areas show, in the early stages, a well-defined limiting line, but during such weather as just described, these soon extend over the whole leaf, becoming soft and emitting a very unpleasant odor.

GENERAL MORPHOLOGY

If we examine the brownish spots originating on the under side of the leaves with a hand-lens, we find them composed of many delicate white branching threads, which protude through the *stomata* or breathing pores, and produce (conidia) spores. These spores are

Late Blight—Final Stage

Note the scorched-like appearance. (From the New York Experiment Station, Geneva, Bulletin 241.)

somewhat egg-shaped, colorless, and are blown about by the wind and washed by the rain, until they fall on neighboring leaves or are washed through the soil to the tubers. After falling on a moist leaf or being washed by rain to a young tuber, the spore gives rise to a number of minute swimming spores (zoospores), which move actively about. These eventually settle down and emit slender germ-tubes, which may enter the leaf through a stoma or directly penetrate the epidermis. Once within the plant, the fungus develops rapidly and sends its branching root-threads (mycelium) in every direction.

AN EXPERIMENT DESCRIBED

Many experiments are to-day being carried on by plant pathologists in the endeavor to obtain accurate data as to the life-cycle of the late blight, so that remedial measures may be taken when they are most applicable and effective. Prof. George Massee describes one of special economic interest which was conducted at Kew. In this experiment three potatoes showing the brownish stains so characteristic of the late blight, were cut in half and planted in pots. Three of the pots were placed in a hothouse at a temperature of about 70° F., where the humidity occasionally reached saturation point, and the remaining three put in a room having no artificial heat and where the air was kept as dry as possible. Equal quantities of water were supplied in each case. The results were, in brief, as follows:

DISCUSSION OF RESULTS

The plants grown under the warm, moist conditions developed rapidly, but the fungus also developed, appearing when the plants were six weeks old, and by the end of the succeeding two weeks the three plants were completely blackened and killed. On the other hand, those grown under dry conditions did not develop as rapidly as the others, but were apparently free from the fungus; when, however, they were removed to the warm, moist surroundings the dormant mycelium developed so exceptionally, that within a fortnight these also were killed.

CONCLUSIONS

From this experiment we may conclude that epidemics of potato blight are influenced largely by weather conditions, and the potato grower is advised to take as much care in selecting his seed potatoes, by obtaining them from districts free from blight, as he now commonly does in selecting his peas to insure freedom from the much dreaded pea-weevil. It should also be remembered that infection by the early and late blights is due, not only to the hybernating mycelium, but also to the spores produced on the leaves.

(To be continued in next issue.)

Black Rot of the Tomato

W. T. Macoun, Horticulturist, Ottawa

This disease did much damage to tomatoes in some parts of Canada in 1906, a large percentage of the fruit being rendered useless in some plantations. When the disease begins to spread on the fruit, small, roundish spots may be seen usually towards the blossom end. These rapidly increase in size, and the tomato becomes discolored and rotten at the parts affected. The spores are given off from dark mould-like masses on the surface of the fruit, and these being scattered re-infect the

fruit. The disease also attacks the leaves. The tomato rot can be controlled by spraying with Bordeaux mixture. Begin in the hotbed and keep the plants covered with the mixture until the fruit is nearly ripe.

Suggestions on Seed Selection

By "Rambler"

UNDER modern methods of culture and marketing vegetables, uniformity of both growth and product is of the greatest desirability. Generally, the more familiar a man is with any vegetable, and the more intensive his method of cultivating that vegetable, the more he notes and values points of difference. From this, it is but a step to saving his own seed by rigid selection. By this means some of our best varieties of vegetables have come into existence. In such hands they were kept to a fixed type, and through such gardeners gaining fame in their local markets and elsewhere, the enterprising seedsman makes an effort to secure some of the seed, with the result that each individual seedsman and grower strives after their ideals and in some cases breed out the very qualities that made it desirable, because, under the conditions and for the purposes with which that seed grower was familiar, those qualities were objectionable rather than desirable.

Let us now consider some of the facts and laws of vegetable life, and how they may be taken advantage of to produce seed which will uniformly develop into plants of distinct and desired types. Every plant originating from seed has a definite, distinct, and changeless character. This character is inherent in the seed, and is made up of the balanced sum of different tendencies, potentialities, and limitations of development inherited in different degrees from each of its ancestors for an indefinite number of generations, plus more or less influence received from the climatic and other conditions effecting the growth and development of the seed producing plant.

The force of these different ancestral influences is by no means fixed or stable even in plants of the same ancestry. Were all the ancestors of a plant precisely alike and of the desired type, and the conditions for growth equally favorable, all the seeds produced by it would develop into plants equally like their common ancestors.

Under the best modern cultural conditions the environment of plants in a field is practically the same, but there is usually a great variation in the quantity and quality of the product, most of which variation is due to the differences in the individual seed. In the majority of vegetable crops the plants are so variable that if 90 per cent. of them showed the distinctive merit of the variety as well as is seen in the best 10 per cent., the profit and satisfaction of growing the crop would in many cases be doubled. In many cases less than 50 per cent. of the plants show the characterisics of the variety clearly enough to identify it with certainty.

Such facts show that however valuable may be the part of the plant breeder in the origination of new sorts, the great need of the day is not for new sorts, but for seed growers who will furnish us with better and purer stocks of the varieties we now have. The fruit growers have the works of such men as Downing and Beach, with their full, accurate and clear descriptions of each and every variety of fruit, as well as the adaptability of the different sorts to certain places. The poultry fancier has, in the Standard of Perfection, a full, minute and accurate description of each variety of fowl, with the result that throughout the whole of this continent, each and every poultryman is striving for the one and same ideal, and it is only since they have adopted this standard that the poultry industry started to make the strides that have brought it to the front. On the other hand, in vegetables, where the permanence of a variety and the retention of its qualities depend upon a clear statement of its distinguishing characteristics, very little work has been done. Is it any wonder that the smooth-skinned Hubbard squash of 50 years ago, has drifted into the densely wasted Hubbard of to-day? Many claim that the quality has changed as much as the character of the skin.

When we remember that the relative influence of each ancestor may vary in each individual, and the great variation represented in the ancestry of the different plants of most stocks of vegetables, it is not surprising that some individuals are very different and of immensely greater practical usefulness than others, though they often fail to transmit that superiority to their descendants. The only way we can secure seed certain to develop plants of any exact type is to make sure that each and all its ancestors are of that exact type. To do this we must have that type clearly defined, and, in selection, rigidly adhere to it, and not be tempted into the use of plants that vary from that type, even though they may appear individually superior.

Clover follows potash; it is also favored by lime, because lime sweetens the soil and liberates potash.

Notes on Melon Pests

W. G. Horne, Clarkson, Ont.

Insects are troublesome and annoying at times. There are three kinds that make their appearance more or less every year on melons. Each has its own peculiar way of doing work.

The first one to attack the plants is the cut-worm. It has a clean, decided way, and there is no mistaking the results. The next to make its appearance is the yellow-striped beetle. Its mode of attack is quite different. These beetles sometimes come in large numbers and, if left for two or three days, soon destroy a whole melon patch. They suck the sap and tissues from the leaves and make the plant a mere skeleton. No remedy yet known will destroy them. Dusting the plants with land plaster will check them. Apply it in the morning when the dew is on the vines. If dusted a few times the most of the beetles will leave. Some will stay until blossoming is over. They are fond of the blossoms. They are the cause of a great number of deformed melons.

Another annoying and repulsive insect is the pumpkin or "stink" bug. A plant once attacked by this insect commences to wither and gradually dies. His work generally takes place when you are looking forward to getting from four to six nice melons from a hill. Suddenly the vines begin to wilt, and soon the damage is completed.

Dust Spray for Cabbage

Is the dust form of applying Paris green and lime for the cabbage worm of any value?—T. E., Summerland, B.C.

Dust sprays have been tried with considerable success. They have the advantage over liquid sprays, being much easier and quicker applied. Liquid sprays have the objection that frequent applications are necessary and this requires considerable time and labor, making the work expensive. Dust sprays may be applied rapidly and with greater ease. While the dust process is somewhat new as yet, it would seem that it is very effective for leaf-eating insects such as the cabbage worm and the potato beetle. The dust spray is easily prepared. It consists of one pound of Paris green to which fifteen pounds of common flour or air-slacked lime are added. The flour is to be recommended as it is more adhesive than the lime. Care should be exercised to fight cabbage worms when the plants are quite small, as they are most destructive then.

I have noticed in my vineyard that grape rot was most prevalent on a gravelly hill and on knolls, not on clay level. Would like to know if this is so elsewhere.—W. J. Allam, Homer, Ont.

OUR QUESTION AND ANSWER DEPARTMENT

Readers of The Horticulturist are Invited to Submit Questions on any Phase of Horticultural Work

The Terrapin Scale

Is the Terrapin scale prevalent in Ontario, and is it a serious pest?—S. M., St. Catharines, Ont.

I have seen the Terrapin scale, *Lecanium nigrofasciatum*, but once or twice in Ontario. Some six years ago, specimens came under my observation in the Kent district, but they have not spread to any extent so far as I have heard. Dr. Bethune of the Ontario Agricultural College reports the appearance of this scale on a maple tree at St. Catharines last summer. I observe that the recent circular from the United States Department of Agriculture, extracts from which were published in THE CANADIAN HORTICULTURIST for June, states that it must be considered a dangerous pest. As it is a single-brooded species, I am of the opinion that it will never become widespread. It may become quite numerous on individual trees, and injure the trees attacked, but it will never compare with the San Jose scale.—Answered by Prof. Wm. Lochhead, Macdonald College.

The Codling Worm

I am sending specimens of insect cocoons and larvæ for identification.—C. E. T., Brighton, Ont.

The cocoons hidden away so nicely on the bark belong to the codling worm. Brighton is in that part of Ontario where this insect is mostly single-brooded. In such cases the cocoon is not made until August, and the caterpillar remains in the cocoon until the next spring. The pupa, in such case, is not formed until spring. In the specimens sent the caterpillars were hidden away snugly in cocoons lying in hollows made in the bark.

Bagging Grapes

Is the plan of putting bags on grapes for the purpose of securing extra size for exhibition purposes practicable?—M.H., Stoney Creek, Ont.

The plan is practicable for the purpose mentioned. It may also be employed in the growing of grapes for home use. Immediately or soon after the grapes have blossomed, cover the bunches with two or three-pound ordinary manilla bags. It is the surest and often the most practical way of securing perfect bunches. Slip the sack over the bunch and pin about the stem, leaving no opening to catch water. It is well, also, to make a small hole in the lower corner of the bag so that no water will remain in it. Leave the bag on until the fruit is ready to pick. Bagging grapes prevents injury by disease and also protects the fruit from attacks by birds; some varieties are greatly improved by the method, and the bloom of the fruit is preserved at ripening time, thus improving the appearance of the fruit for exhibition purposes.

Apple Tree Borers

Kindly give summer treatment for apple tree borers.—H.G., Vernon, B.C.

Prevent the beetles from laying their eggs on the tree by encircling the trunk with a few sheets of paper extending from the surface of the ground to two feet in height. Hill up with earth at the bottom, and make tight at the top with a cord. Above the paper the trunk should be washed from the limbs downwards, and even the larger limbs, with the following mixture: one pint of crude carbolic acid, one quart of soft soap, and two gallons of hot water, mixed thoroughly. Apply with a cloth or soft broom. Use only on old bark, as suggested, not on the young twigs or leaves.

Treatment of Roses

I purchased a couple of rose bushes last fall. They were strong, healthy-looking bushes. I planted them, but am afraid I did not spread the roots enough, so planted them over again this spring. They are strong and green-looking. Will you kindly tell me what to do for them? Would also like to know the quickest and best way to make rose cuttings grow.—Mrs. J. D. M., Lardo, B.C.

Various conditions may have entered into the failure of your rose bushes. As you re-planted them this spring it was necessary, first, to prune them back severely. If this was done, it is probable that they will grow if they are strong and healthy in appearance as mentioned. When they are growing nicely it would be well to work in some poultry droppings around the bushes, as there appears to be no natural manure better suited to the growing of roses.

There are various ways of propagating roses by the use of cuttings. One of them is to fill a shallow box with sharp sand to the brim, pack the sand fairly firmly, sprinkle it with water and insert single-jointed cuttings almost their whole length in the sand. The cuttings may be inserted directly in a cold frame, the soil of which is light in nature. The essentials to success are to shade the cuttings until root growth starts, and to keep the sand saturated with water. It is best to transplant the cuttings as soon as they have a cluster of roots one-half an inch or an inch long. Leaving them too long in sand weakens the cuttings.

Spruce Gall-Louse

I have a spruce hedge that is infested with the gall-louse. How shall I treat it?—W. L., Ellesmere, Ont.

The spruce gall-louse is an insect that is causing much trouble and anxiety to the growers of these evergreens in many parts of the province. Good results in treating it have been obtained by spraying the affected trees at the time the young plant lice are exposed. This should be done at once, so that the treatment may be made before they are enclosed in the galls. The spraying should be done with a tobacco and soap wash or with kerosene emulsion, Towards the end of August when the winged forms of the insect come out of the galls, the spraying should be repeated. The point is to spray when the insects are seen to be moving about. They are so small that a magnifying glass will be required to see them. For a complete job the spraying should be repeated two or three times at short intervals, as the insects do not all come out at the same time.

Ordinary kerosene emulsion is made by the use of the following ingredients: Soft water, one gallon; hard soap, one-half a pound; kerosene, two gallons. The soap should first be dissolved in the boiling water, after which the kerosene is added and the two churned for five or ten minutes. The mixture should be diluted with ten times its measure of warm water before using. There are two essential conditions of success in making this emulsion. The liquids should be warm, and the water as soft as possible.

Cutting Asparagus

When should the cutting of asparagus cease, and how should the bed be treated during summer?—B.N., Nelson, B.C.

If it is desired to keep the bed in bearing, cutting asparagus should cease before July. Late cutting exhausts the roots and shortens the time in which to prepare for the next year's crop. The plants must have a season's recuperation. The roots must be stored with food for another season, and this cannot be done unless the tops are allowed to grow. If the plants are weak or inclined to rust, a little nitrate of soda will help them.

Identical treatment year by year tends to depreciate land.

Golden-leaved honeysuckle is a valuable vine for a situation where a plant of moderate growth with pretty foliage is required.

The Canadian Horticulturist

Published by The Horticultural Publishing Company, Limited

The Only Horticultural Magazine in the Dominion

Official Organ of British Columbia, Ontario, Quebec and Prince Edward Island Fruit Growers' Associations and of the Ontario Vegetable Growers' Asaociation

H. Bronson Cowan, Managing Editor and Business Manager
A. B. Cutting, B.S.A., Horticultural Editor
W G. Rook, Advertising Manager
Garrett Wall, Circulation Manager

GREAT BRITAIN

Frank Fletcher, 135 Henrietta Street, Old Trafford, Manchester, Eng., Advertising and Circulation Manager

1. The Canadian Horticulturist is published on the 25th day of the month preceding date of issue.

2. Subscription Price in Canada and Great Britain 50 cents a year, three years $1.20. For United States and local subscriptions in Toronto, 25c. extra a year is charged for postage. Foreign subscriptions, $1.00 a year, including postage.

3. Remittances should be made by Post Office or Money Express Order, or Registered Letter. Postage Stamps accepted for amounts less than $1.00.

4. Discontinuances—Responsible subscribers will continue to receive The Horticulturist until the publishers are notified by letter to discontinue, when all arrearages must be paid.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising Rates quoted on application. Sworn circulation 6,800. Copy received up to the 18th. Responsible representatives wanted in towns and cities.

7. Articles and Illustrations for publication will be thankfully received by the editor.

Our Protective Policy

We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason to believe that any of our advertisers are unreliable, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant we will expose them through the columns of the paper. Thus, we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefits of this Protective Policy is that you include in all your letters to advertisers the words "I saw your ad. in The Canadian Horticulturist." Complaints should be sent to us as soon as possible after reason for dissatisfaction has been found.

Communications should be addressed:
THE CANADIAN HORTICULTURIST,
506-7-8 Manning Chambers,
TORONTO, CANADA

A BRITISH COLUMBIA NEED

In the province of British Columbia, where the majority of fruit growers are novices, more vigorous efforts than those prevailing now might be made to disseminate useful knowledge gained elsewhere. There is danger lest quacks and empirics should mislead those who, in a genuine desire to gain knowledge, make manly confession of ignorance. *Au royaume des aveugles les borgnes sont rois.* It is difficult to see how the high quality of Okanagan fruit is to be maintained and loss to the individual and country avoided, unless some well-organized efforts are made.

A cooperative movement in this direction—for the provision of valuable knowledge and advice—would be more opportune than the present movement for cooperation in the sale of fruit, having regard to the fact that several years must elapse before the province can produce fruit to a large extent. Lectures in the nearest town, and demonstrations in suburban gardens, are ill-attended for obvious reasons, and are seldom worth the time spent upon them; the distribution of literature is another imperfect half-measure. The necessary knowledge and advice should be brought right into the farmers' own orchard by properly accredited experts, appointed to go from orchard to orchard. Other countries have profited largely by such measures, when thorough and well organized.

It is, of course, absurd to expect the government of the province or anyone else to carry out precautions and scientific methods for the farmer, but, if it is worth while to invite immigrants from far and wide to try their hands at fruit-growing, and to threaten prosecution of those farmers who do not keep their orchards clean, it is equally worth while to make provision for thorough, practical advice and instruction. The magnitude of the possibilities before the Okanagan Valley call for the establishment of a staff of experts with unquestionable credentials in that excellent fruit section of the province. It is difficult to-day to convince discerning visitors from other prosperous fruit countries that there is not in the province even an official entomologist. The time is at hand when the Okanagan Valley will discard the characteristics of youth and inexperience, and abandon the illusion hugged so closely in some quarters that she is endowed specially by Providence for fruit-culture without effort. *Absit invidia.* The fortunate conditions which have allowed hitherto even orchards neglected by man to produce good fruit, are passing away. The marvellously fertile soil and the climate have proved their potentialities; it is left for man now to prove his power. If the growers' efforts are guided on the right lines, the prospects of this beautiful valley as a producer of hardy fruits are unsurpassed upon the continent.

INSPECTION AT COAST

Fruit growers in British Columbia should continue to protest to their provincial government in regard to the discrimination against eastern nursery stock that is practised by the officials of that province. The matter should not be allowed to drop until there is an inspection station at Revelstoke or Golden. The present inspection and fumigation station is located at Vancouver. Growers in the fruit districts of the eastern side of the province suffer many disadvantages when they buy trees from Ontario or elsewhere in Eastern Canada.

First of all, the British Columbia government, by compelling eastern nursery concerns to ship stock through to Vancouver for inspection, makes it almost impossible for the eastern concerns to have their stock delivered to the growers in perfect condition. The unnecessary delay caused by the stock having to cross the province to Vancouver, from which point it has to be shipped back almost to the original point at which the goods entered the province, is unreasonable and anything but good for the stock. In the case of perishable goods, the delay often proves disastrous. Owing to the exorbitant freight rates in the west, the freight on goods shipped in this way, is almost double what it would be were they shipped direct to the growers, so that instead of being a benefit to the British Columbia fruit grower, the lack of a station on the eastern border of the province handicaps him, as eastern stock is excluded almost entirely from the province, for it is almost impossible for him to import under anything like reasonable conditions.

Most British Columbia fruit growers of the interior parts of the province, such as the Okanagan Valley, Kamloops and Nelson district, and also in the Columbian Valley, want eastern grown stock. Much of the stock in the east, particularly that from the Niagara district, is grown under climatic conditions almost identical to those of their own districts, whereas the trees that are shipped in by the coast and Washington and Oregon concerns are grown under largely different conditions. In the interior parts of British Columbia, they have some winter, and consequently must have trees thoroughly hardened and matured in order to stand the climatic changes. Trees at the coast, however, are grown where there is practically no winter. Trees grown under these conditions make a soft and pithy growth, and often winter-kill or become black-hearted, and at best are but short-lived. It is, therefore, the British Columbia fruit growers' wish that eastern stock be allowed to come into their province, under the same conditions as stock from the Washington and Oregon concerns, which would be the case were a station established at the eastern border of the province,

We can show numerous letters from the most prominent fruit men of British Columbia, showing that eastern trees are wanted. In fact, the orchards that are now in bearing and are bringing profitable results to the growers, and that are producing fruit that is making a name for British Columbia, are grown from eastern trees; they have proved, in every respect, better. The growers are able to secure a much larger list of varieties from the east and, also, larger and older trees. Under present conditions, however, they are almost compelled, by the provincial government laws, to buy their trees from a foreign country; trees which, in many cases, are utterly unsuited for their own districts. There are, it is true, some small coast concerns in British Columbia that have probably excellent stock, but only a small list of varieties to choose from.

Indignation meetings have been held in various parts of the province, and this spring resolutions were passed by different local associations, as well as by the British Columbia Fruit Growers' Association, petitioning for the establishment of a station at Revelstoke. The Board of Horticulture at Victoria, while agreeing that it would be a most desirable thing for these growers to have a station in the east, claimed that in recent years the imports from the east have fallen off fully seventy-five per cent., and that it would not pay them to establish a station in the east. A poorer excuse could not be given. The only reason for the falling off of eastern importations is due to the passing of this unjust law discriminating against eastern concerns. Were conditions reversed and the inspection station established at Revelstoke or Golden, and the Washington or Oregon concerns compelled to ship their stock to Revelstoke to be examined, it is safe to predict that the Washington and Oregon concerns' trade would fall off fully seventy-five per cent. and the trade from the east increase several hundred per cent. As a few hundred dollars would erect a shed sufficient to serve the purpose of an inspection and fumigation station in the meantime, the excuses given do not hold water. In view of the repeated requests made by the fruit growers of British Columbia, it is to be hoped that the provincial government will see its way clear to establish an eastern inspection and fumigation station at an early date.

A HEAVIER PENALTY NEEDED

The need for a revision in the Fruit Marks Act which will make it possible to deal more severely with packers who habitually defy the law, becomes more apparent every year. As it is, the heaviest fine that can be imposed is 25 cents to $1 a barrel. It has been found that this fine is not heavy enough to deter fraudulent work on the part of some shippers who consign large quantities of fruit every year to the Old Country. Some of these men have been fined repeatedly, but continue to resort to false packing. They believe that they can make more money by shipping second grade fruit as finest, than they are in danger of losing on the comparatively small number of falsely packed barrels of fruit on which they may be fined.

It is seldom that a man can be caught with more than 25 barrels of wrongly marked fruit in his possession. In such a case, the fine cannot exceed $25. In the warehouses, barrels that have been falsely packed are not marked until shortly before they are shipped. It is seldom that the inspectors can catch the fruit just as it is being put on the train. At Montreal, the inspectors are unable to inspect more than five or six barrels an hour. While these are being inspected, three or four carloads of apples may

be loaded on the steamers, and thus are never inspected.

Provision should be made that where a shipper has been convicted, on several occasions, of fraudulent work, the fine imposed should be sufficient to deter further practices of that nature. It might be well, even, to make imprisonment of such offenders possible. The Department of Agriculture would do well also to publish the names of all parties convicted twice in the same season of fraudulent packing.

A SHARPER CAUGHT AGAIN

Some weeks ago considerable attention was drawn to the case of an Ontario apple shipper who was detected by the Dominion Department of Agriculture in an attempt to re-mark, fraudulently, barrels of apples just before they were placed on board at Portland, Me. Recently the same offender was caught in another piece of sharp work. One of the Dominion fruit inspectors examined his fruit in his warehouse and passed it as having been correctly marked. Suspecting, however, that an attempt might be made to re-mark these barrels, the inspector in question boarded a passenger train and reached Montreal before the fruit had arrived.

The inspector waited in the Grand Trunk yards, and when the train with the fruit arrived, he found that the cars containing the barrels were occupied by a man who had re-marked the barrels while they were in transit. The result was that the Department took action and the offender was fined $80 and $40 costs. This is the first occasion upon which action has been taken under the Fruit Marks Act for changing marks. The packer in this case has been convicted four times this season for breaking the Fruit Marks Act

A great mistake is made by some British Columbia fruit growers in trying to ship their fruit too ripe. California found out, many years ago, that a critical stage to pick was when the fruit had its full color and tasted natural. They soon found by experience, when the fruit was past the "green" taste, and the seed of apple, pear or peach was past the "milk" or slightly cream, the fruit was fully matured, and could be depended on to "carry" a long way. Orchard foremen do naught but see to the time of picking at the proper stage; by tasting, cutting and inspecting every day, till a certain stage is reached. Their knowledge to the shipping public has placed California fruit on all marts of the world. Many an orchardist of the west and middle west of the United States has found ready employment in this special line in the great fruit belts of the coast and interior British Columbia. Local fruit growers who now ship too ripe, should follow the teachings of these men and, thereby, help to raise the standard of that portion of British Columbia fruit that is not up to the plane that the province is striving to attain.

Since last fall, the work of inspecting the fruit that passes through the port of Montreal for export has been done more thoroughly than ever before. The work has been under the direction of Mr. M. R. Baker, one of the Dominion fruit inspectors, who is deserving of much credit for the improvement that has taken place. Last fall the method of inspecting the fruit was largely reorganized, more attention being given to the inspecting of the fruit that passed through the city during the night. The result is that the number of inspections made has shown an increase of over one-third more than the best year since the Fruit Marks Act came into force. Fruit passing through Montreal at night, now, is as likely to be inspected as that loaded on the steamers during the day. This is as it should be.

THE CANADIAN HORTICULTURIST is a national publication, not local. Its articles are prepared for the horticulturists of all Canada. In every issue may be found articles and news notes from writers in each province of the Dominion. This issue contains many articles of particular value to the fruit growers of British Columbia. All persons interested in the fruit industry of that province are invited to subscribe. The price is only fifty cents a year.

Our Loss is Their Gain

It is announced that Prof. F. C. Sears, horticulturist at the Agricultural College, Truro, N.S., has been appointed professor of pomology at the Massachusetts Agricultural College, Amherst, Mass. The news will be received with regret by the horticulturists of Canada, particularly those in Nova Scotia, as Professor Sears has many friends, and has done excellent work in that province.

About 10 years ago he was offered and accepted the position of director of the Nova Scotia school of horticulture, supported by the provincial government. He conducted this school very ably up to the time of its merger with the Nova Scotia Agricultural College at Truro, when he became professor of horticulture of that institution. His work has been along broad lines, teaching, experimental work and extension work, and as Nova Scotia is a great fruit district, especially in the apple line, he has become very proficient and expert on pomological lines. He is regarded as a prominent authority by the people connected with the departments of agriculture in Washington and in Canada, and the trustees of the Nova Scotia agricultural college offered him a raise of $500 in salary to stay with the provincial institution. Canadians hope that Professor Sears will reconsider the matter and remain on this side of the line. His services are needed in the development of Maritime horticulture.

The Niagara Experiment Station

THE newly-appointed director of the Horticultural Experiment Station at Jordan Harbor, Ont., is H. S. Peart, B.S.A., late lecturer in horticulture at the Ontario Agricultural College, Guelph. Mr. Peart was born at Nelson, Ont., near Burlington,

H. S. Peart, B.S.A.

and is a son of Edwin Peart, a well-known general fruit grower of that locality. Director Peart is a cousin of A. W. Peart, provincial fruit experimenter for the Burlington district, and a director of The Horticultural Publishing Co. He lived on the fruit farm of his father until 1899, when he undertook a course at the O.A.C., Guelph, specializing in horticulture and graduating in 1903. Immediately after graduation, he was appointed assistant in horticulture at the same institution, succeeding A. B. Cutting, B.S.A., now horticultural editor of THE CANADIAN HORTICULTURIST. Mr. Peart filled the position with credit until his appointment to Jordan Harbor, June 1, 1907. With the support of the fruit growers of the province, Mr. Peart will endeavor to work out many perplexing problems that can be solved only by the patient, accurate application of science with practice and by the earnest cooperation of all persons concerned.

The work this season at the Horticultural Experiment Station at Jordan Harbor, Ont., will be mainly constructive. Between 10 and 11 miles of tile drain will be laid. An office and workbuilding and the director's residence will be erected. The work of clearing the land, which was started one year ago, will be continued and the experimental blocks laid out.

Some variety tests of vegetables have been undertaken to form a basis for selection work next season. Peas, beets, carrots, onions, spinach and corn are already planted. A few late potatoes will be set and given different cultural treatments. A small strawberry plantation will be put out to form a nucleus for succeeding years.

In an apple orchard, some 30 years old, a tillage experiment will be started. About one-third of the sod was broken last autumn. About one-third has been plowed this spring. The balance will be left in sod. The two plowed sections will receive the same tillage up to about July 15, when one-half of the spring and one-half of the fall-plowed sections will be sown with a cover crop; the remainder will be given clean tillage. This should form a valuable object lesson to illustrate the advantages or disadvantages of the various methods.

Some work at reclaiming the lake bank is being undertaken. The station hopes to be able to give some assistance to the residents along the lake who are face to face with the washing-out problem.

It is the intention of Mr. Rittenhouse to macadamize the road and lay a four-foot concrete pavement on the township line, which lies along the eastern boundary of the place. This will add materially to the value of the property and will afford an excellent object lesson for visitors.

Mr. Jas. Johnstone, who is president of the British Columbia Fruit Growers' Association, was instrumental in pioneering the growing of fruit in Kootenay and of bringing the great excellence of that district to public notice. He has filled many important offices, among them president of the Nelson Agricultural and Industrial Association and of the Kootenay Fruit Growers' Association. He is now president of the newly formed Fruit and Produce Exchange of British Columbia, which has for its chief object the distribution of all fruit in the province from a central office, so as to prevent the different local associations from sending too much fruit into any one market at one time; in fact, the even distribution of British Columbia fruit throughout the provinces of the west from Winnipeg to the Pacific coast. This is one of the most forward movements ever made in the fruit industry in any country. A portrait of Mr. Johnstone appears on page 179.

One Maynard plum tree, worth $1.50, sent prepaid to every reader who will send us one new subscription to THE CANADIAN HORTICULTURIST at 50 cts. See our offer on page iv.

Cooperative Fruit Growers Meet

At the annual convention of the Ontario Cooperative Fruit Growers' Association, held in the offices of THE CANADIAN HORTICULTURIST, Toronto, on June 11 and 12, the name of the organization was changed to The Cooperative Fruit Growers of Ontario. The meeting was attended by representatives from about 20 affiliated associations, and resulted in the transaction of much business of value to the cooperative movement. Those present included: A. E. Sherrington and W. A. Rowand, of Walkerton; D. Johnson, Forest; W. H. Dempsey, Trenton; Robt. Thompson, St. Catharines; W. H. McNeil and H. Wilson, Oakville; Elmer Lick, Oshawa; N. A. Graham, Ivan; W. H. Gibson, Newcastle; A. R. Siple, Burgessville; Wm. Leary, Parkhill; F. J. Barber, Georgetown; J. G. Mitchell, Clarksburg; Adam Brown, Owen Sound; B. J. Hamm, Orono; Chas. F. Miller, Nelson; C. W. Gurney, Paris; J. A. Webster, Sparta; H. B. Cowan, of THE CANADIAN HORTICULTURIST; P. W. Hodgetts, Secretary of the Ontario Fruit Growers' Association; and A. B. Cutting, Toronto. The old board of officers was re-elected, as follows: Pres., A. E. Sherrington, Walkerton; 1st vice-pres., D Johnson, Forest; 2nd vice-pres., W. H. Dempsey, Trenton; 3rd vice-pres., Robt. Thompson, St. Catharines; sec.-treas., A. B. Cutting, Toronto. Mr. Elmer Lick, of Oshawa, was appointed auditor.

Among the important questions discussed was the advisability of placing one or more men in the west to represent all the associations. The strong need for such was pointed out, but it was thought that the organization was not yet sufficiently well established to warrant such action. It was decided to undertake a system of extensive advertising to bring the associations into closer touch with western buyers; also to secure one or two established persons or firms in the west to handle the fruit of those local associations that desire to place a portion of their output in such hands. For the purpose of assisting newly formed and small associations in the disposal of their fruit, one or more persons directly connected with the cooperative movement will be appointed in Ontario as salesmen for those associations that require such services.

A resolution was passed asking the Dominion Government to assist in restoring the German fruit market to Canadian products. Another asked for a third Dominion Fruit Conference in 1908. One was passed regarding various features of the transportation of fruit, including demurrage of cars, stop-over privileges, facilities for shipping and so on, the same to be laid before the Railway Commission. Another resolution dealt with the practice of making vinegar with acids as being detrimental to the business of making apple cider.

The affiliated associations decided to raise funds to carry on the work of the central organization more extensively than was done last year. A uniform brand, to be used by all affiliated associations that pack their fruit in accordance with the standard that is recognized by the central organization, will be adopted. The local brands will not be done away with but will be strengthened by the use of a small uniform brand to indicate affiliation with the provincial association.

A resolution was passed requesting the Dominion Minister of Agriculture to take such steps as may be necessary to insure the fruit packed by the affiliated associations receiving close and frequent inspection at the hands of the inspectors of the department and that the inspectors be authorized to give such assistance and advice as lie within their power to assist in securing uniform packing of fruit and further, when any local association has been convicted for a second time of fraudulent practices, that it be expelled from the association.

A deputation made up of the executive committee of the Cooperative Fruit Growers of Ontario waited on Hon. Nelson Monteith, Minister of Agriculture, and requested the appointment of instructors in fruit packing, orchard management and organization of cooperative associations. Such an instructor will do much to improve the methods of producing fruit and preparing same for market. The Minister gave assurance of assistance at an early date.

All affiliated associations will receive each week, as they did last year, advices on crop conditions and prices throughout Canada and the United States and, as far as possible, in other countries. This feature of the work alone is well worth the price of membership in the central association. All local associations not yet affiliated are asked to join as soon as possible. The cooperative movement in itself is an important one. The cooperation of cooperative societies is a step still further in advance. Local associations all over the province should take advantage of it. For particulars write to A. B. Cutting, sec.-treas., The Cooperative Fruit Growers of Ontario, 507 Manning Chambers, Toronto.

The Late Robt. Hamilton

In the death of the late Rev. Robt. Hamilton, of Grenville, Que., horticulture in Canada loses one of its most enthusiastic adherents. Over 30 years ago, Mr. Hamilton came to Grenville, as the pastor of St. Fillan's Presbyterian Church. All his life he was a student and practical worker in botany, seed growing and general horticulture. While at Grenville, he continued this work on a small farm which he purchased, and there established what is now one of the finest orchards in the province of Quebec. He gave particular attention to the selection and culture of apples.

When the present Dominion Government extended the system of exhibitions throughout the world, Hon. Mr. Fisher chose Mr. Hamilton as superintendent of Canadian fruit exhibits at the several exhibitions held at Paris, Glasgow, Japan, St. Louis, and at Liege in Belgium. It was at the latter place that the disease which finally terminated his life first manifested itself in the form of neuritis. Gradually the disease progressed until finally acute paralysis ended his life in Montreal. The funeral was largely attended by many friends of the deceased, among whom were Hon. W. A. Weir, Minister of Public Works; John D. Hains of Montreal, and many others from a distance. The late Mr. Hamilton was 69 years of age, and leaves a widow and one daughter to mourn his loss.

Items of Interest

This season the Woodstock Horticultural Society has been active in doing much work of value to that city. The distribution of premiums among the members has been exceptionally heavy, and included 119 fruit trees, 210 rose bushes, 48 lily bulbs, 60 tuberous begonia bulbs, 24 cannas, 25 peonies and a number of other plants. About 250 packages of aster seeds were distributed among the school children.

In June, Wm. Hunt, of the O.A.C., Guelph, visited Stratford, London, Tillsonburg and Port Dover, and addressed about 3,000 school children, as well as the horticultural societies of those places.

The first irrigation convention covering the provinces of Saskatchewan, Alberta and British Columbia will open in Calgary on July 17. Among the questions that will be discussed are: "Forestry as applied to irrigation," "Extension of surveys, in connection with irrigation, having particular reference to gauging of streams and location of reservoir sites," "Agricultural and horticultural experiments and the use and duty of water on irrigated farms," "The industrial development following the work of irrigation," "Laws relating to the use of water and the administration thereof." All who are interested in the utilization of the great national resources of Western Canada are invited to attend.

The members of the Toronto Horticultural Society purpose holding their annual excursion to Queen Victoria Park, Niagara Falls, on July 4. Reduced rates have been arranged for and a pleasant outing is anticipated.

The Canadian commercial agent at Manchester, Eng., P. B. McNamara, reports that severe frosts did enormous damage to the Damson trees at Cheshire. Thousands of trees will not bear any fruit, and Cheshire Damsons will therefore be scarce again.

Reports from various commercial centres in England state that British Columbia fruit was well received, and paid for in those markets during the past winter. This is evidence that the effort being made by British Columbia growers to grow and pack fruit of the highest quality is being rewarded.

The British Columbia Fruit and Produce Exchange, that was organized recently, is a step in advance in the fruit industry of that province. It should be of much value in the handling of British Columbia's great fruit products.

The Biological Department of the Macdonald College, St. Anne de Bellevue, Que., purposes carrying on extensive experiments in the study of potato diseases.

The Deputy Attorney-General for Ontario, Mr. R. Cartwright, has notified H. B. Cowan, the secretary of the Ontario Vegetable Growers' Association, that the Attorney-General's department has received word that the charges that the Canadian Canners, Limited, are a combine in restriction of trade, will be investigated before long in connection with the investigation that is now before the courts of the Grocers' Guild at Hamilton. Specific charges were made against the Canadian Canners, Limited, recently by *The Toronto News*, to the effect that it was a combine in restraint of trade, and that it controlled the prices at which the wholesalers purchased their goods as well as the prices paid the growers for their products. These charges were referred to the branch associations of the Ontario Vegetable Growers' Association, which reported in favor of the Ontario Vegetable Growers' Association, asking the Attorney-General's department for an investigation. This was done with the foregoing result.

Weeds in Lawns

Ed. THE CANADIAN HORTICULTURIST: In referring to weeds in lawns you state in your June issue that the only way to get rid of dandelions is by spudding. This was tried by dozens of people here, but had no effect; the roots broke off and the appearance of lawns was destroyed. If there are any practical demonstrations here of your theory would like to run across them.—R. S. Steele, Hamilton.

[NOTE.—It is almost impossible to rid a lawn of old, large-rooted dandelions without injuring the appearance of the turf. For this reason, these weeds should be removed the first fall or following spring after their appearance by spudding, as was suggested in the article referred to. When this has been neglected and the lawn becomes overrun with dandelions the only practicable thing to do is to renew the entire turf or that portion affected by plowing or digging, fertilizing with commercial fertilizers or very clean manure, and re-seeding with clean grass seed.—Editor.]

The Prospects for a Fruit Crop

REPORTS from the fruit districts of Canada indicate that growers are expecting a good crop of most kinds of fruits. The following information from crop correspondents of THE CANADIAN HORTICULTURIST point out the situation in the leading localities:

YALE AND CARIBOU, B.C.

Spence's Bridge.—The spring was favorable for fruit. There will be a good average crop of apples, cherries and plums.—A. Clemes.

Kamloops.—The fruit yield will be light owing to the severe weather of the past winter, which was the coldest experienced in this district for 20 years.—A. E. Meighen.

Enderby.—Pears and apples will yield a heavy crop. Plums and cherries fair.—W. L. Allan.

Peachland.—Last winter was a cold one for this section, yet there is a show for a good crop. We expect a fair to good crop of peaches, apples, pears, plums and cherries. Raspberries are showing well.—C. Aitkens.

GREY COUNTY, ONT.

Owen Sound.—There was an excellent bloom and indications point to a good crop in all lines of fruit.—Adam Brown.

Clarksburg.—The prospects for a good crop are A1. Spys probably will yield about two-thirds crop.—J. G. Mitchell.

LAMBTON COUNTY, ONT.

Forest.—The prospects for apples are exceptionally good. They blossomed well, and the weather has been favorable for the setting of fruits. Plums and peaches also promise well; raspberries, only fair; and strawberries, almost a total failure.—D. Johnson.

ESSEX COUNTY, ONT

Ruthven.—Fruit prospects are not promising. Late frosts practically ruined the early strawberries; late varieties will be fair; raspberries, fair. Cherries bloomed nicely, but did not set well. The peach crop will be short, as many trees were winter-killed. Pear trees look well, but are not heavily loaded. Apples alone promise an abundant crop. Tomatoes are backward.—J. O. Duke.

ELGIN COUNTY, ONT.

Sparta.—Everything was well loaded with blossoms, except Baldwins and they were bare.—J. A. Webster.

OXFORD COUNTY, ONT.

Burgessville.—The prospects are good for fruit trees in general. On apple trees there was at least a two-thirds bloom. Growers anticipate a good harvest. Plums, cherries and pears also look well.—R. A. Siple.

WENTWORTH COUNTY, ONT.

Winona.—There has been a very heavy bloom on all apple trees. Pears bloomed well, but are not setting satisfactorily; some varieties are very light. Plums promise a full crop except the Japan varieties, some of which will be a failure. Peaches will give a good crop, although some trees are winter-killed. Cherries will be light, especially the sweet ones. Grapes wintered well, but are backward. Strawberry crop is medium; canners are offering $1.70 a 24 quart crate. Raspberries, medium, $1.75 a crate.—Murray Pettit.

Bartonville.—The raspberry crop will be light. Strawberry acreage is small, but the beds are looking well. The outlook for a general crop of fruit is quite favorable.—Thos. Tregunno.

Hamilton.—The strawberry crop will not be large; price $2.00 a crate of 24 boxes. The raspberry crop will be short and the price high Cherries, plums, pears, currants and gooseberries promise a good crop. Peaches are dropping badly, and indications point to a light crop. The grape prospects are for a heavy yield.—Jas. A. Stevens.

BRANT COUNTY, ONT.

Paris.—The bloom indicated a fair crop, but it is too early to predict.—C. W. Gurney.

HALTON COUNTY, ONT.

Oakville.—Prospects are good for a large crop in the tree fruits. Gooseberries and currants will be light.—W. H. MacNeil.

Georgetown.—There was a splendid show of bloom on all kinds of fruit trees. We anticipate a good crop of apples. Considerable interest is being taken in the cooperative movement.—F. J. Barber.

PEEL COUNTY, ONT.

Clarkson.—Cherries, plums and pears are setting well and indicate a good crop. Apples also promise well. The strawberry crop promises to turn out fair to very good. Raspberries will be only medium. The prospects are good for blackberries, gooseberries and currants.—W. G. Horne.

DURHAM COUNTY, ONT.

Newcastle.—Prospects are promising for a large crop except in those varieties that bore heavily last year. Raspberries were partly winter-killed, but will yield a fair crop. Cherries, plums and pears were full of blossoms.—W. H. Gibson.

HASTINGS COUNTY, ONT.

Trenton.—The bloom on fruit trees indicated a large crop of most fruits. Japanese plums will be a total failure and also some varieties of the European type.—W. H. Dempsey.

GRENVILLE COUNTY, ONT.

Maitland.—Early and fall apples bloomed heavily; Fameuse, in particular, had a full bloom with perfect weather for fertilization, and have set a full crop. Winter apples are light, but they do not figure largely in this section. Pears and plums will be light; what few cherry trees there are promise a full crop.—Harold Jones.

Ontario Vegetable Crops

ALTHOUGH the season is backward, growers expect a fair to good crop of most vegetables. The fine growing weather during the latter half of June has brought the crops along rapidly. The situation in the various districts is mentioned in the reports of crop correspondents of the Ontario Vegetable Growers' Association, as follows:

OTTAWA DISTRICT

Billings Bridge.—The usual crops are being grown. The acreage of tomatoes and melons will be double that of last year. Asparagus has been plentiful. Rhubarb has been a glut. Green onions were plentiful.—T. Mockett.

LENNOX AND ADDINGTON

Napanee.—Potatoes planted extensively, are three weeks late, and have come up unevenly; prospects are for half a crop. Maggots are affecting seed onions badly.—E. M. Sherman.

TORONTO DISTRICT

Humber Bay.—Early sown roots, such as beets, carrots, and parsnips, came up unevenly owing to the long cold weather. Seed onions also are thin and not so many sown as in past years. Some large patches of Dutch set onions have been planted; they are an extra good crop. Transplanted onions have just begun to grow. Transplanted beets are about ready for market. Cabbage and cauliflower look fairly well. Celery is growing slowly. Beans came up poorly. Corn on light soil looks well; on heavy soil almost a failure. Spinach is a good crop but poor sale. Radishes are plentiful. Outside lettuce is coming in with prices lower than usual.—J. W Rush.

Doncaster.—Crops are two weeks late. Some onions and parsnips had to be re-sown on account of a poor catch. Rhubarb is not plentiful; price has kept up. Tomatoes were put out about two weeks later than usual and probably will give the greenhouse crop a better show.—Gibbard.

PEEL COUNTY

Clarkson.—Early potatoes are looking well. Onions planted on light soil have dampened off considerably, on heavy soil look well. Early corn is backward. Tomatoes and early cucumbers are looking fairly well. Early melons have felt the cold winds and look a bit yellow; a bad sign.—W. G. Horne.

HALTON COUNTY

Burlington.—The acreage of onions is slightly larger than last season. Early cabbage looks fine; cutting commenced last week. Tomatoes, peppers, egg plants and melons have made little growth but are improving. Early potatoes, peas and beans are doing well. Table carrots, parsnips and beets were planted lightly but are looking well. Wireworms have been rather destructive, especially on onions and melons.—J. A. Lindlay.

HAMILTON DISTRICT

Beans, peas, potatoes and corn are doing nicely. Owing to scarcity of potatoes there has been a good demand for early spring truck and prices have remained firm for asparagus, lettuce and onions. Tomatoes will not be a heavy crop; growers are expecting higher prices than last year. The acreage of potatoes is 20% increased.—Jas. A. Stevens.

Bartonville.—New beets are coming in plentifully and selling at 60 cents a doz. Early cabbages are bringing 75 cts. to $1 a doz.—Thos. Tregunno.

KENT COUNTY

Chatham.—Everything is backward. Radishes are coming in in fair quantities. Onions are somewhat scarce. The acreage of Dutch sets is larger than usual, and probably there will be a good supply. The acreage of tomatoes is about the same as in past years. Early potatoes are backward; old stock is scarce at $1.25 a bag.—Fred. Collins.

WELLAND COUNTY

Niagara Falls South.—Vegetables are growing fast and making up for lost time. Beans are looking fine, though late. Melons, squash and cucumbers are just beginning to grow nicely. Corn will be a month late. Indications point to a good season although two or more weeks behind.—Thos. R. Stokes.

ESSEX COUNTY

Leamington.—Cabbages are growing well and will be on the market about July 1. Early tomatoes were held back but are now doing fine; they will be three weeks late. Hot-house cucumbers are selling at $1.60 a 11-quart basket; there are not enough to supply the demand, and some are coming in from Boston.—E. E. Adams.

LAMBTON COUNTY

Sarnia.—Vegetables are doing well except tomatoes. There is about the average acreage; potatoes are 10% to 20% above. Some patches of seed onions have been damaged by wireworms.—W. A. Broughton, Sarnia.

Reliable in Emergencies.—Mr. L. Strother, 92 Crescent Road, Toronto, Ont., Canada, writes under date of Mar. 26, 1907: "I have been using Absorbine for the past year or more, and find it everything that can be desired for soft swelling such as wind puffs, capped hocks, thoroughpins and strains." Many customers write of the satisfactory results Absorbine gives in removing blemishes, curing lameness, etc. You try a bottle. Price $2.00 at druggists or delivered. Manufactured by W. F. Young, P.D.F., 194 Monmouth St., Springfield, Mass. Canadian Agents, Lyman Sons & Co., Montreal.

NOTES FROM THE PROVINCES

By our Regular Correspondents and Others

Prince Edward Island

Rev. Father Burke, Alberton

The extraordinarily remarkable conditions for the spreading of orchard pests last year, will make this season an active one for the orchardist. The oyster-shell bark-louse is very prevalent. The whitewash process is being used for its destruction. Many applied the pure lime wash; while this remedy is helpful when applied in November, it is not likely to rid the trees of the pest when applied in spring. Rains remove it too quickly. Whilst there are a few indications of mice ravages, we are not apprised of any considerable damage.

Considerable new planting is being done. We have every hope in the business. In the meantime, spray, spray, spray.

Quebec

Auguste Dupuis, Director, Fruit Stations

Although the blooming of fruit trees in eastern Quebec is 19 days later than last year, it is very promising. Cherries, plums, and apples make a good show, excepting Fameuse, Alexander, Duchess and Russets. According to reports received from several counties, the cloudy cold weather and occasional rain in May and the first 10 days in June, have been most favorable to trees planted this spring.

Small fruits of all kinds are in the best condition generally, but specially promising in the fields and gardens near Quebec city. Market gardeners have suffered considerably by the heavy frosts of the first days in June; their tomatoes and other tender vegetables were destroyed.

British Columbia

C. P. Metcalfe, Hammond

The weather has been exceedingly dry and drought has done little to help the frost-injured crops along. Strawberries are in full swing, but the crop will be a light one, probably not more than 50%. Raspberries are showing poorly, the dry weather causing the frost-injured canes to turn yellow. Blackberries promise a medium crop. Both apples and pears will average a fair crop, some varieties being heavily loaded and others light. Prunes will be a lighter crop than last season.

Proper and frequent cultivation is one of the most important details of orcharding. Most fruit growers hoe and cultivate only when necessary to keep the weeds down, and pay little attention to the loss of moisture. In dry spells, instead of paying particular attention to the retention of moisture in the soil by keeping the surface from crusting with a dust mulch, they allow the cultivations to become less frequent because the weeds do not thrive any better than the trees from lack of water.

Owing to the limited number of nurseries and the rapid growth of the fruit growing industry in this province, fruit growers have had to import most of their nursery stock from the eastern provinces and from the United States. All imported stock has to pass through the fumigation station, and be subjected to examination. If found infested with insect pests or fungous diseases it is destroyed, and the apparently clean stock is fumigated. Now, many of the fruit growers are complaining that the fumigated trees seem to have very little vitality left and some are killed outright.

A provincial cooperative association is being formed, and is seeking incorporation, for the handling of the fruit and produce of the province, composed of the local associations. The following have joined: Kootenay, Revelstoke, Salmon Arm, Kamloops and Chilliwack, and others have signified their intention of doing so. One rule governing the association is as follows: Each local union, or exchange, shall subscribe for two shares for the first 50 members or fractional part thereof, and an additional share for each additional 50 or fractional part thereof. The idea is to control the output of the local associations under one management. The scheme is perhaps a little premature, as the local associations and fruit growers of the province are hardly educated in the benefits of thorough cooperation, but it is a step in the right direction.

Montreal

E. H. Wartman, Dominion Fruit Inspector

Cherry, plum and apple trees on the island of Montreal bid fair for a crop. The way in which California fruits are appreciated in this city was told on Friday, June 14, by the prices paid for the first car of California apricots, peaches and plums. Apricots sold at $2 a crate of 12 quarts. This figure means over $5 a bushel. Peaches brought the same price. Plums, being less numerous in packages, went as high as $3.55, which is over $9 a bushel. In years gone by, it was a common occurrence to buy any of these fruits in California for one cent a pound, or 60 cents a bushel for canning. This leads one to believe that some person is making money out of them. This car arrived in excellent condition, and must have been very gratifying to Hart and Tuckwell, who are the agents of the Earl Fruit Co.

Strawberries have been coming in in fair quantities. The Maryland strawberry boxes hold, when level full, 56 cubic inches. The fruit weights about one pound, two ounces. The man is a hero who ventures to pay $2,000 for a car of fruit so perishable in its nature. The quality of Maryland berries, and the manner in which they are crated are a credit to that noted berry state.

In many cases, Ontario berries arrive too slack. Purchasers some times have to take 10 boxes out of 60 to fill the balance properly. This calculation has to be made by a shrewd buyer, or he will be out on the deal. To be an all-round expert on fruits and fruit packing, one should see the systems of packing from other countries, and then couple this with his own experience and ability.

Southern Ontario Apples

Editor, THE CANADIAN HORTICULTURIST,—Your readers in southern Ontario will have read the interesting letter on "Apple Growing," by James E. Johnston, Norfolk County, in the May number. With this letter I heartily agree, except upon one point; and even on this one point, namely, the keeping qualities of the southern-grown winter varieties, Mr. Johnston and I are at one practically. No finer apples are grown in the world; few trees are more prolific, and I quite agree with Mr. Johnston that if proper care is taken of the apples, they can be kept fairly well into the winter season; but as a matter of fact, neither farmers nor apple buyers will go to the trouble of taking proper care of these apples, and consequently there is a comparatively poor market for these apples when northern grown fruit of the same varieties of no better flavor, and not so good looking, are selling at high prices. These are facts that can be verified by hundreds in southern Ontario as well as by the apple buyers.

Under the circumstances I could not agree with Mr. Johnston when he recommends the planting of Baldwins, Spies, Kings, and Russets. Why grow these apples and sell them for a mere pittance! A Brighton buyer reports that he bought several thousand barrels of these winter varieties in the neighborhood of the town of Simcoe, Norfolk County, at 50 cents a barrel last year. Of course Mr. Johnston says very truly, that if proper care had been taken of these apples; if cooperative associations had been formed and cold storage plants established, these apples could have been doubled or trebled in value; but the same care bestowed upon Duchess and Wealthy would certainly yield much larger profits.

Nature has marked out southern Ontario as the early fruit region of Canada, and the area of this early fruit region is comparatively limited. Why then should this early fruit area attempt to compete with the late fruit area that is almost unlimited? My advice to the fruit growers of southern Ontario is to follow the teachings of nature and of experience, and devote themselves to the early and tender fruits and avoid as far as possible competition in late fruits.—A. McNeill, Chief, Fruit Division, Ottawa.

Gardening in Vancouver

M. J. Henry

Ornamental gardening in Vancouver is becoming an established fad. Very few new residences are built without the owners investing from $5 to $200 in ornamenting their grounds.

Jobbing gardeners are rushed with work, and command from 35 to 40 cents an hour, and some of them more. A few years ago the owners employed white gardeners to lay out their grounds and then had the work finished with cheap Chinese help. To-day "John" has got on to the job, and wants "allee samee" white man's pay.

Two Leading Societies

The two largest horticultural societies in Ontario are located in Ottawa and St. Catharines. Considering the population in its vicinity the St. Catharines society leads all the others in the province as regards the largest proportionate membership. The Ottawa society started out at the beginning of the year with an ambition to secure 400 members. It already has obtained about 350.

The St. Catharines society already has over 300, and is fast increasing its membership. It is not unlikely that the St. Catharines society by the end of the year will lead all the other societies in the province. This speaks well for the work of Mr. W. B. Burgoyne, the president of the Ontario Horticultural Association, who is also the president of the St. Catharines Horticultural Society, as well as for the work of his capable board of directors, and specially the secretary, Miss L. A. Radcliff.

The increasing demand for perfect fruit has caused fruit growers to give greater care to the picking of the fruit. No other device is as necessary as a ladder that is light, easily adjusted, and strong. Many fruit growers have expressed themselves in the highest terms of the ladders manufactured by the Berlin Woodenware Co. of Berlin. The new illustrated booklet just issued by this firm contains a full description of the goods they manufacture, and it is well worth writing for.

British Columbia Fruit Growers' Association

W. J. Brandrith, Secretary-Treasurer

THE British Columbia Fruit Growers' Association was organized on Feb. 1, 1889, the officers elected being: J. M. Browning, C. P. R. Land Commissioner, president; Thos. Cunningham, 1st vice-president; C. W. Henry, 2nd vice-president; and A. H B. Magowan, secretary-treasurer. The object of the organization was to encourage the cultivation of choice fruits, flowers and vegetables. This was done by means of competitive exhibitions held alternately at Vancouver, New Westminster and Victoria and by the reading of papers and the delivery of addresses at quarterly meetings. Later, the flower and vegetable parts were dropped, and the marketing of fruit included in the objects of the association.

To encourage the cultivation of choice fruits,

Mr. James Johnstone
President, British Columbia Fruit Growers' Association

addresses are given by practical men at meetings held yearly in the principal fruit growing centres. Last year 21 of these meetings were held, in addition to the regular annual and quarterly meetings. At these meetings, practical demonstrations in the best methods of planting, pruning and spraying fruit trees are given; proper methods of packing fruit for market are shown. The association furnishes its members with pure spraying material at cost, importing sulphate of copper direct from England, it having been found that the commercial article on sale in British Columbia contained too much sulphate of iron. Tissue paper for wrapping apples, pears, peaches and tomatoes is also furnished at cost. *Bradstreets* is also furnished for the members.

Eight or nine years ago, some people claimed that British Columbia fruit would not carry safely across the prairies. In order to prove that this was not true, the association purchased a carload of mixed fruits and shipped them to Winnipeg. The car was on the road seven days, but notwithstanding this, there was not a loss of three per cent. The following year, three cars were sent to different parts of Manitoba and Saskatchewan with the same result. This settled the question satisfactorily. Cherries and plums have been shipped at distance of 1,800 miles, yet arrived at their destination in good condition.

The association keeps a watchful eye on express and freight rates and the manner in which the fruit is handled. It has been the cause during the last seven years of the lowering of freight rates, and fruit is now handled by the express companies and railways in a more satisfactory manner than formerly.

For several years small exhibits of fruit were sent to exhibitions in Manitoba and the prairie provinces for the purpose of advertising British Columbia fruit. They proved excellent advertisements.

Until about four years ago the efforts of the association were confined to Vancouver Island, the lower mainland, and the Okanagan Valley. Now, the Kootenays, east and west, the valley of the Columbia, the Thompson, the Nicola and the Lillooet valleys have to be considered, and application for expert assistance has been received from Bella Coola, 400 miles up the coast. It has been said that the association has outlived its usefulness. This is a great mistake, as the area capable of producing fruit is constantly being increased through increased knowledge of the hitherto unknown sections of the province. So will the work of the association increase. Because we have been successful in winning gold medals is no reason for letting up now; this, instead, should be an encouragement to try for things still greater.

A Comparison of Methods

M. Burrell, Grand Forks, British Columbia

BROADLY speaking, there is little difference between the methods adopted by the best horticulturists in the provinces of Ontario and British Columbia as the general principles that form the basis of a successful horticultural practice apply in both cases. There are, however, differences of condition in climate and soil and so on which have led to greater stress being laid on some matters in British Columbia than in Ontario which can be pointed out. For example, while some of the Ontario problems are concerned with the drainage of soils and securing a suitable mechanical condition, here things are reversed. It is extremely rare throughout this province to find a retentive or compact subsoil or a top soil sufficiently clayey in character to bake. Consequently, our problems are more those of irrigation than drainage. As the conservation of moisture is a matter of extreme importance, general attention has been directed to proper methods of cultivation. On the whole, a more systematic and clean cultivation is practised in British Columbia than in Ontario.

The industry in this province is of such recent origin compared with Ontario, and there are so many people going into fruit growing proper as differentiated from mixed farming, that the desire to become acquainted with the most modern methods is perhaps more universal. As a result there is a general keenness to ascertain the exact values of varieties, the real importance of thinning, and acquire any knowledge along the lines of intensive horticulture. A large percentage of the fruit grown consists of apples both for the North-west and English markets. Being practically free from the worst fungous and insect pests, it has not been difficult to produce a clean and highly attractive character of fruit.

Considerably more attention has been paid by us here than by our Ontario friends to the question of packages and packing. The box is the universal package. A careful system of grading is gradually being followed which results in the buyer knowing exactly what he is getting and the seller obtaining a corresponding price. In orchard work the tendency is strongly towards low-heading of trees.

During the past year or two immense tracts of land have been subdivided into 10 and 20 acre plots for fruit work. The acreage now in fruit throughout the province is about 45,000, compared with 20,000 two years ago, so that it is natural to surmise that, when so many hundreds of people are going into fruit growing as a sole means of livelihood, there will follow a keen desire to acquire the best methods.

Dealing With Insect Enemies

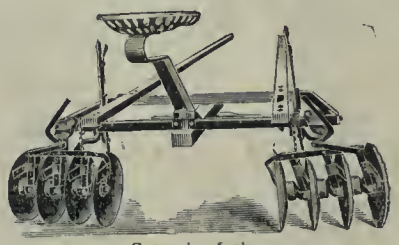
Rev. G. W. Taylor, British Columbia.

All insects are not enemies of the fruit grower. Fully 50% of them are beneficial. Only an expert, however, can tell in every case whether an insect is a friend or an enemy. A prominent fruit grower in British Columbia observed a suspicious looking insect on an apple tree and he sent it to me for identification. It was a syrphus fly, and is among the best friends that a fruit grower can have, because its larvæ feed almost entirely upon plant lice.

In another case, a gentleman, who thought he knew what he was doing, protected adult beetles that were injurious, and at the same time he was fighting the larvæ of the same in the ground. He was fighting the young and at the same time preserving the old of the same species.

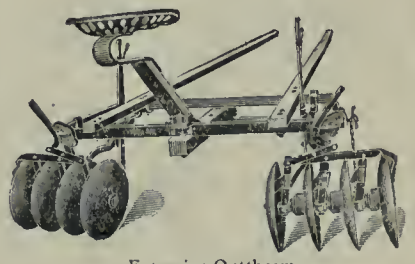
The first duty of the fruit grower with regard

BISSELL'S



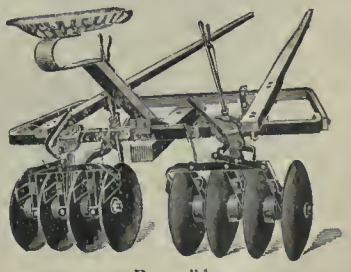
Extension Inthrow

ORCHARD



Extension Outthrow

HARROWS



Reversible

Built in sizes for 1 or 2 horses. Immense capacity for hard work and thorough cultivation

It will pay any man to investigate the "Bissell" Harrows before buying. With us you get what you want. Some other places you take what they have. We save you money and give our customers the best satisfaction. It costs some folks a lot of money to find this out.

Manufactured only by

T. E. Bissell, Dept. N., Elora, Ont.

Mention The Canadian Horticulturist when writing

LADDERS FOR EVERY USE

FRUIT GROWERS in every part of Canada are using our celebrated double truss high carbon steel wire extension ladders.

LIGHTER STRONGER CHEAPER than any other ladder made.

The most perfect ladder in existence. Each side rail has a heavy, high carbon steel wire stretched along the inside, securely fastened at the end, forming a truss and prevents side swaying. Send for one of our new illustrated catalogues, giving sizes and prices.

THE BERLIN WOODENWARE COMPANY
BERLIN - ONTARIO
Branches in all parts of Canada

to insect pests is to be ever on the watch. He should not inspect his orchard only once a year, or wait for the inspector to tell him what is wrong, but should be continually on the watch. In this way, he will find out when anything is wrong before much damage has been done. Then, he should call in expert advice. British Columbia fruit growers can seek information from Dr. Fletcher, Dominion Entomologist at Ottawa; Mr. Thos. Cunningham, Inspector of Fruit Pests for British Columbia, or Mr. Anderson, head of the Provincial Department of Agriculture. The third step in dealing with insect pests is to act upon the advice of the expert.

Fruit Inspection

Editor, CANADIAN HORTICULTURIST,—In your editorial column in the May number, under the head of "Fruit Inspection," you stated that during the past winter practically all the inspectors of Ontario were employed within a radius of 15 miles. You infer also that 10,000 barrels of apples west of Toronto still remained with no inspector stationed in that territory, when the temporary inspectors were laid off. Upon these two points permit me to correct

IF YOU HAVE APPLES OR POULTRY TO CONSIGN

we can handle them for you to advantage. If apples are in car lots, write us and we can sell them for you f.o.b. your station

THE DAWSON COMMISSION CO. Limited
Cor. West Market and Colborne St.
TORONTO ——— ONTARIO

Fixed Inclusive Rates For APPLE EXPORTERS

AND ASSOCIATIONS

THE CANADIAN PRODUCE SALES CO., London, England, will sell your apples on a commission basis of five per cent. on returns and will also give you a guarantee that the total expenses from your railway station right into the London market (including all cartage, dock and market charges) shall not exceed $1.25 (5s.) per barrel.

GIVE US A TRIAL

Write for Full Particulars to

ARTHUR C. DEAYTON
Proprietor and Manager
BANK CHAMBERS - - TEDDINGTON
LONDON, S.W.
Mention Canadian Horticulturist when writing

Fruit Trees

The Helderleigh Nurseries have long been famed for the excellence of their Fruit Trees. The stock is of undoubted quality and the trees are admirably grown for fall or spring planting.

Vines

A splendid lot of well-ripened canes in one and two year olds.

Ornamental Trees

A rich and varied collection of finely grown trees suitable for planting for effect in parks, streets or gardens.

Descriptive Catalogue and Prices Post Free on Application

Coniferous and Evergreen Shrubs

An unsurpassed collection which consists of all the best and hardiest varieties.

Deciduous Shrubs

An immense stock of all the hardy varieties. Field grown stock with masses of fibre.

Roses

A complete collection of the best varieties in dwarfs and standards.

Climbers

In great variety. All transplanted, strongly rooted, in thousands.

A Few Vacancies for Agents of Undoubted Respectability

Helderleigh Nurseries **E. D. SMITH** WINONA, ONT.
Established ¼ Century Acreage 800

Mention The Canadian Horticulturist when writing.

you in the matter of fact. The inspection for Ontario last winter included the systematic visiting of every packing house in Ontario; the chief work lying between Hamilton and Belleville east and west, and north to the Georgian Bay. This distance is about 180 miles east and west by 100 north and south.

When the temporary inspectors were laid off the first of March, as they have been ever since

Apple Tree in Bloom in the Kootenay Valley
On the land of J. L. Stocks, Nelson, B.C.

the inception of the Fruit Marks Act, there still remained a much larger force for the quantity of apples to be examined than during the active fruit season, and one was specially detailed to look after the packing houses west of Toronto. With the exception of some irregularities caused by illness, the original plan of visiting all the packing houses systematically was carried out to the end of the shipping season. The questions of policy to which you refer may well be discussed at another opportunity.—A. McNeill, Chief, Fruit Division, Ottawa.

Warranted to Give Satisfaction.

Gombault's Caustic Balsam

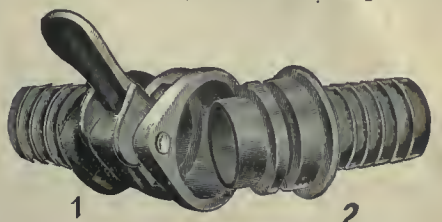
Has Imitators But No Competitors.

A Safe, Speedy and Positive Cure for Curb, Splint, Sweeny, Capped Hock, Strained Tendons, Founder, Wind Puffs, and all lameness from Spavin, Ringbone and other bony tumors. Cures all skin diseases or Parasites, Thrush, Diphtheria. Removes all Bunches from Horses or Cattle.

As a Human Remedy for Rheumatism, Sprains, Sore Throat, etc., it is invaluable. Every bottle of Caustic Balsam sold is Warranted to give satisfaction. Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

The Lawrence-Williams Co., Toronto, Ont.

Doolittle Grip Hose Couplers



They latch tog her, and do not leak under the heaviest water pressure, and never drop their washer.

These Couplers you will enjoy using, for they are quick and handy, and save time and the wearing of the hose to a great extent. They will pay their cost in one season's use. They are made as a part of the finish on taps and nozzles, also separate to fit on any ¾" goods, and have ½ or ¾ stems to go in hose of similar capacity. A trial will convince you of their superior merits.

Write for particulars to

I. P. DOOLITTLE

10 Alexander Street TORONTO, Ont.

Dominion Line

ROYAL MAIL STEAMSHIPS

"Alberta," new steamer, 14,000 tons, building
"Albany," new steamer, 14,000 tons, building

MONTREAL TO LIVERPOOL

CANADA	July 6th
OTTAWA	" 13th
DOMINION	" 20th
KENSINGTON	" 27th
SOUTHWARK	Aug. 3rd

Above steamers all carry passengers.

MONTREAL TO BRISTOL
(Avonmouth Dock)

MANXMAN	July 6th
TURCOMAN	" 20th
ENGLISHMAN	Aug. 3rd

Favorite Steamers for all kinds of perishable cargo having fan ventilation, cold storage, and cool air chamber.

GEORGE W. TORRANCE, Freight Agent . 28 Wellington St. E., TORONTO

M. A. OVEREND, J. W. WILKINSON . . . . . Travelling Freight Agents

DOMINION LINE—PORTLAND, Maine.

Mention The Canadian Horticulturist when writing

Kootenay Fruit Lands

HIGHEST GRADE

FOR SALE

Both Retail and Wholesale

J. LAING STOCKS

Box 23, Nelson, B.C.

Mention The Canadian Horticulturist when writing.

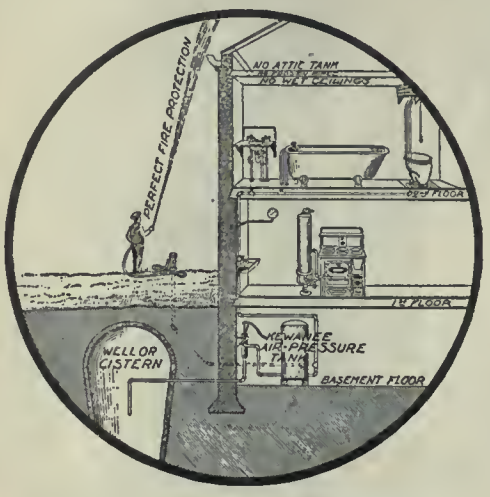
About Raspberries

A. J. Logan, Beamsville, Ont.

Raspberries should be picked when dry, as they will keep much longer. In marketing, it is not advisable to sell the fruit on commission. It is better to sell f.o.b., or to a canning factory. For three years I sold on commission and as a rule lost money. Then for four years I sold to a factory and came out successfully. During the past four years I sold f.o.b. for satisfactory prices. I see no difference between selling to the canning factory or selling for cash to local buyers. Young raspberry canes should be pinched back about the time of harvesting. By this means the crop will be increased. The practice is not advisable, however, in patches where the snowy tree cricket is prevalent. In this case, it is not well to pinch back the canes until late fall or spring, because as a rule the insect injures the cane higher up than when it is pinched back in summer. By leaving the work until late fall or the following spring, much of the injury done by this insect can be removed.

KEWANEE WATER SYSTEMS

(AIR PRESSURE)



Are now in use in over 7,000 Private Homes, Stock-farms, Greenhouses, Ranches, Hospitals, Charity Homes, Apartment Houses, Factories, Government Buildings, etc. Built in sizes to suit the smallest family or the largest town. Throw streams 100 feet high. Everything out of sight and reach of frost. No failures. They are NOT expensive luxuries but ARE ECONOMICAL NECESSITIES, and give to the country or village resident the FULL SERVICE AND FIRE PROTECTION afforded in the cities. No elevated tank nuisances. Write for information to

W. H. BRAND

Canadian Representative and Salesman

Jordan Station, Ontario

Mention The Horticulturist when writing

FOR SALE AND WANT ADVERTISEMENTS

Advertisements under this heading inserted at rate of one cent a word for each insertion, each figure, sign or single letter to count as one word, minimum cost, 25 cents, strictly cash in advance.

LANDSCAPE GARDENING—Plans drawn to scale for laying out and planting parks, cemeteries, public or private grounds. Work supervised. C. Ernest Woolverton, landscape architect, Grimsby.

FOR SALE CHEAP—Nine acres excellent garden land, 1½ miles from first-class unlimited market. Terms reasonable. Jas. Y. Jackman, Box 200, Owen Sound.

EMPRESS PANSIES, the finest strain in existence. Sow in July and August. Packets of Seed post free, 50c., 75c. and $1.00.

DAFFODILS in 5, 10 or 15 different varieties (East Coast grown bulbs are the best). Delivered free by parcel post. 250 for $3.00, 500 for $5.50, 1,000 for $10.00.

Bulb Catalogue Post Free

WALSHAW & SON - The Nurseries

SCARBOROUGH, ENGLAND

Established two centuries

Orchids Now is the time to place your orders for Spring delivery of freshly imported Orchids. **Our prices are very low, quality considered.** Also large stock of established Orchids on hand

CARILLO & BALDWIN

SECAUCUS, N.J., U.S.A.

Feed Your Land

WITH GOOD MANURE AND GET

GOOD RETURNS

MARCHMENT'S

SURE GROWTH COMPOST

—IS THE BEST—

Supplied to the Largest Nurserymen and Fruit Growers in Ontario

S. W. MARCHMENT

133 VICTORIA ST., TORONTO

Telephones Main 2841 Residence Park 951

Mention The Canadian Horticulturist when writing

THE GROWTH OF CULTURE

¶The day is passed when culture and true social enjoyment were confined to the few—to the privileged classes. We live in a day of enlightenment and democracy. Equal educational advantages, equal opportunities for culture and enjoyment of those things in life that are best worth while. ¶The luxuries of yesterday are the necessities of to-day, and in the musical world nothing is more noticeable than the demand of all classes for the highest possible grade of piano. The piano manufacturer who meets this demand is never slack for want of orders.

THE NEW SCALE WILLIAMS PIANO

is Canada's greatest piano. Its improvements and latest features have gone far toward creating a better appreciation of good music all over Canada. It more nearly approaches the ideal piano than any other. Its tone, quality, construction and architectural beauty are unexcelled. For good music, for accompanying the solo voice or chorus of song, great artists all over the world are loud in its praises. And yet it is a Canadian instrument—perhaps the highest exponent of Canadian industry. ¶If you will fill in the coupon below, cut it out and take it to your dealer or send to The Williams Piano Co., we will send you **absolutely free several beautiful booklets,** "The Making of a Great Piano," etc. We will also tell you of easy purchase plans that will interest you.

Please send me, free of all cost, booklets descriptive of the New Scale Williams Piano and special easy payment offer.

Name.....

Address.....

.....

THE

Williams Piano Co.

LIMITED

Oshawa, Ont.

Mention The Canadian Horticulturist when writing

A National Publication

It is our intention to make THE CANADIAN HORTICULTURIST a national horticultural publication, for our subscribers live in every province in the Dominion. In one mail, recently, we received a number of subscriptions from British Columbia and from New Brunswick. Although many thousand miles apart, these subscribers read THE CANADIAN HORTICULTURIST with as much profit as though they were in Ontario, and readers in both provinces took advantage of our offer to send 20 "3 W's" strawberry plants for one new subscription.

Among other nice lists of new subscribers received in time to begin with the July issue of THE CANADIAN HORTICULTURIST, are lists from W. H. Merrill, Victoria Co., Ont.; W. H. Gibson, Durham Co., Ont.; E. H. Toll, Kent Co., Ont.; D. Tuesing, Grey Co., Ont.; R. J. Cochrane, Ottawa Co., Ont., and many others.

See our special premium announcement in this issue. It is on page iv.

A square deal is what we all want! Mention our paper when answering advertisements and then, if you think the article you are sent is not as represented, notify us, and we will gladly investigate. This paper is for our readers and we want to see that they get fair play. See our Protective Policy on editorial page.

AN INFLAMED TENDON
NEEDS COOLING.
ABSORBINE

Will do it and restore the circulation, assist nature to repair strained, ruptured ligaments more successfully than Firing. No blister, no hair gone, and you can use the horse. $2.00 per bottle, delivered. Book 2-C Free.

ABSORBINE, JR., for mankind, $1.00 bottle. Cures Strained Torn Ligaments, Varicose Veins, Varicocele, Hydrocele, enlarged Glands and Ulcers. Allays pain quickly

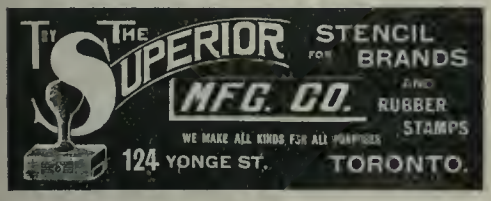
British Columbia Fruit Lands
FOR SALE

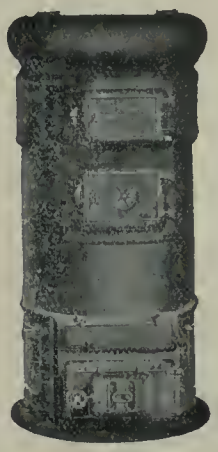
Two ten acre Fruit Ranches, near Vernon, B.C. Price $1,550.

One 97 acre Ranch, good soil, a snap, only $2,500. 4½ miles from Vernon, good water on the ranch, also good pasture and timber.

A splendid Market Garden for sale. 18 acres of land and 110 feet of glass. Doing good trade, a chance for a gardener that wants to make money for himself. Near Revelstoke, B.C. Only $2,000 cash.

F. V. STAGG, Real Estate Agent
P. O. Box 118. Revelstoke, B. C.





"Sovereign" Heating
FOR HOT HOUSES

BEFORE you lay out another dollar on your hot house heater ask about the "Sovereign" hot water boiler. Ask anybody who has used one. And ask who we are that make it.

THE "SOVEREIGN" BOILER IS MADE BY THE MOST EXPERT MAKERS OF HEATING APPARATUS IN CANADA

A steady, reliable fire easily maintained, and less coal used. Works equally well whether connected with the city water service or to a tank on the premises.

Taylor-Forbes Company, Limited
Head Office and Works—GUELPH, ONT.

SELLING AGENTS

The Vulcan Iron Works, Winnipeg, Man.
Boyd, Burns & Company, Vancouver, B.C.
H. G. Rogers, St. John, N.B.

MONTREAL OFFICE, 122 Craig St. West
TORONTO OFFICE, 1088 King Street West

Mention The Canadian Horticulturist when writing

SPECIAL GLASS
FOR GREENHOUSES

Conservatories of The Dale Estate, Brampton, Ont.
Glass supplied by our Toronto Branch

GOOD QUALITY, FLAT, EVEN THICKNESS AND WELL CUT

PILKINGTON BROS.
Limited
Toronto, Montreal, Winnipeg, Vancouver

Mention The Canadian Horticulturist when writing.

THE NEW WAY

THE OLD WAY

THE WAGGONER EXTENSION LADDER

is what you want for pruning and picking; also for general use about the place. It is reinforced with steel wire and is the lightest, strongest and handiest ladder made. Write for free illustrated circulars and price list.

The Waggoner Ladder Co.
LONDON, ONTARIO Limited

Mention The Canadian Horticulturist when writing

GOES LIKE SIXTY
SELLS LIKE SIXTY
SELLS FOR $65
GILSON
GASOLENE
ENGINE
For Pumping, Cream Separators, Churns, Wash Machines, etc. FREE TRIAL
Ask for catalog—all sizes
GILSON MFG. CO. Ltd. Dept. 104 GUELPH, ONT.

WANTED

PERSONS having waste space in cellar, garden or farm, can make it yield from $20.00 to $30.00 per week growing Mushrooms for us. Send stamp for illustrated 16 page booklet on Mushroom Culture and full particulars. MONTREAL SUPPLY COMPANY, Moutreal.

Those Who Received Presents

Many readers of THE CANADIAN HORTICULTURIST took advantage of our offer in the May issue of THE CANADIAN HORTICULTURIST to send 20 "3 W's" strawberry plants, or 10 of Groff's Hybrid Gladioli free, to any reader who would send us one new subscription to THE CANADIAN HORTICULTURIST. A number of our readers not only mailed us in enough new subscriptions to earn both premiums, but some sent in sufficient subscriptions to obtain several sets of both strawberries and gladioli.

Some of those readers to whom we sent strawberries were: Thos. Williams, Victoria Co.;

How's your Roof?

Is it Lightning-proof, Fire-proof, Water-proof?

If not, you should learn all about our **"Safe Lock" Galvanized Steel Shingles.** They are proof against *every* element. The lock, on all four sides, makes it impossible for rain or snow to back up under the shingles and rust the nail holes and raw edges. This feature has been imitated, but is found in its perfection only in

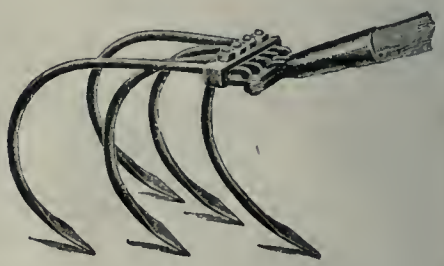
Our "Safe Lock" Shingles.

Don't use wood shingles. Nowadays, they are expensive and very inferior. They catch deposits of dust and dirt, which soon rot the shingles. Then the roof begins to leak. Patch all you like, you can't keep ahead of the leaks. *There's no economy in a wooden roof.*

Users everywhere are delighted with "Safe Lock" Shingles. Talk to them about the roofing question. We'll send you names of users *in your own vicinity*, if you drop us a card.

The Metal Shingle & Siding Co. Ltd., Preston, Ont.

The "Buco" Hand Cultivator



Tines are OIL TEMPERED STEEL SPRINGS, adjustable to width. Handle 4½ feet long.

It gets DOWN DEEP, loosens the soil thoroughly, and cleans the weeds out BY ROOT. One man with a "BUCO" is worth two with a hoe. Less labor, more vegetables. Great around trees and shrubs.

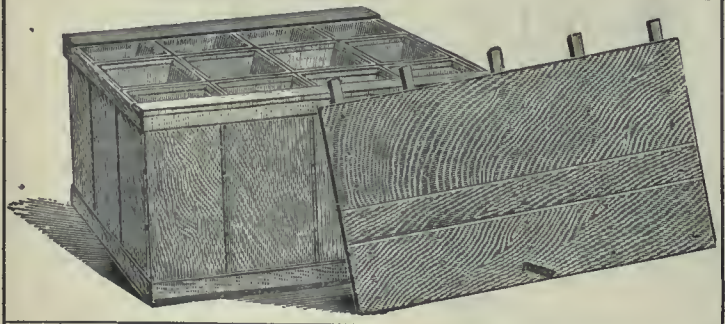
Sent by Express on receipt of price, $1.50 each. Return after trial at our expense, and money back if not satisfactory.

BAILEY-UNDERWOOD CO., Limited
Tool Dept. NEW GLASGOW, N.S.

Mention Canadian Horticulturist when writing

BASKETS

We are Headquarters for all kinds of Splint Baskets



Veneer supplied for the protection of trees from mice during winter

FRUIT PACKAGES A SPECIALTY

SEND FOR OUR PRICES

The Oakville Basket Co. - Oakville, Ont.

Mention The Canadian Horticulturist when writing

Underwood

The Underwood is the best typewriter. But even the best typewriter would be of little value without an operator. Underwood operators are always available.

All the commercial schools of any importance teach the Underwood exclusively (and school men are keen judges of typewriters). Skill in operation is acquired only under expert instruction.

With other machines you have to put up with poorly-trained, incompetent typists. With an Underwood you are safe. Through our Employment Department we supply nearly 1,000 stenographers a year. All-round typewriter satisfaction is secured only with the Underwood.

United Typewriter Co.
Limited

7 ADELAIDE STREET EAST, TORONTO

Mention The Canadian Horticulturist when writing.

Chas. T. Gilleland, Lincoln Co.; Frank Hills, Wentworth Co.; Frank H. McVity, York Co.; J. G. Mitchell, Grey Co.; John Langdon, Ontario Co.; Henry Madill, Simcoe Co.; Mrs. W. M. Russell, Russell Co.; W. E. Farwell, Simcoe Co., Ont.; W. S. Morrison, St. John, N.B.; Geo. Unsworth, Wentworth Co., Ont.; E. W. Hughes, Oxford Co., Ont.; E. M. Wilinot, Coldstream Valley, B.C.

Some readers to whom we sent Groff's gladioli included: Mrs. W. Scull, Lincoln Co.; Mrs. Stephen Winn, Waterloo Co.; Mrs. J. M. Dods, Peel Co.; W. E. Wallace, Northumberland Co., Ont.; G. Campbell, Summerland, B.C.; Mrs. Thos. MacMurchy, Grey Co., Ont.

Among the readers to whom we sent both premiums were: P. W. Wilson, York Co.; F. Moore, Grey Co.; W. H. Gibson, Durham Co., Ont.; and Mrs. Dugal Smith, Bruce Co., Ont.

PAGE WHITE FENCES

The Acme style you see above costs only from 16 cents a linear foot. Handsome and durable for lawns, parks, cemeteries, etc. Any height or length. Gates to match from $2.25. Write for catalog, or inspect this ideal fence. From us direct or any Page dealer.

The PAGE Wire Fence Co., Limited Walkerville Toronto Montreal St. John Winnipeg e12

BECK-IDEN ACETYLENE LAMP

NO HEAT
NO DIRT
NO ODOR
NO SMOKE
NO CHIMNEYS
NO WICKS
NO MANTLES
NO VARIATION

BECK-IDEN ACETYLENE LAMP CO.,
86 Notre Dame St., W. - Montreal.

Paper for Fruit Wrappers

¶ Are you doing an export fruit business? We supply paper—thin—cheap. Good for fruit wrappers. Tell us your wants and let us send you samples free.

TRADE MARK

WHITE TISSUE
MANILLA TISSUE
SPECIALTIES

CANADA PAPER CO. LIMITED
TORONTO

Mention The Canadian Horticulturist when writing

ABUNDANT CROPS OF HIGH QUALITY FOLLOW THE USE OF

Tobique Plaster
OR GYPSUM

ALL KINDS OF LAND REQUIRE THIS FERTILIZER

Fruit Growers—Flower Growers and Vegetable Growers

SHOULD USE TOBIQUE PLASTER

SPREAD IT ON YOUR LAWN OR GARDEN
THOUSANDS OF TESTIMONIALS FROM USERS

R. C. Mosher, Manager, Plaster Rock, N.B.

WESTERN AGENT
THE F. G. TERRY CO., 31-41 GEORGE ST.
TORONTO, ONTARIO

Mention The Canadian Horticulturist when writing

THE PHOTO-ENGRAVERS LIMITED.

DESIGNERS ILLUSTRATORS
ENGRAVERS AND ETCHERS

10 JOHNSTON LANE
TORONTO PHONE MAIN 5251 ONTARIO

Mention The Canadian Horticulturist when writing

Imperial Bank
OF CANADA

Established 1875

Head Office, - Toronto

Capital Paid-up, $4,800,000.00
Rest, - - $4,800,000.00

Savings Department at all Branches
Interest allowed on deposits of One Dollar and upwards and credited four times a year.

On page iv of this issue we make a still more liberal offer; that is to give a Maynard plum tree, worth $1.50, for only one new subscription at 50 cts. Win one of these trees and let us publish your name in our next issue with the names of others who are fortunate enough to win one of these trees.

A Popular Premium Offer.—On another page of this issue we announce that we will give one Maynard plum tree, valued at $1.50 to every reader who will send us one new subscription to THE CANADIAN HORTICULTURIST. We would like every reader of THE CANADIAN HORTICULTURIST to obtain at least one of these splendid trees, but unfortunately Messrs. Stone & Wellington, from whom we are securing them, inform us that only about 350 trees are to be disposed of through our offer. Therefore, we have made arrangements to give one Maynard plum tree, as long as they last, to every reader who will send us one new subscription to THE CANADIAN HORTICULTURIST. Read our offer, and send in your friends' subscriptions.

FLOWER POTS

Send us your Spring order for pots, etc.; which will receive our prompt attention.

Try our pots for growing early tomato plants in.

SEND FOR PRICE LIST AND CATALOGUE

THE FOSTER POTTERY CO., LIMITED
Main St. West, Hamilton, Ont.

Mention The Canadian Horticulturist when writing

THE BEAUTIFUL FLOWER GARDEN

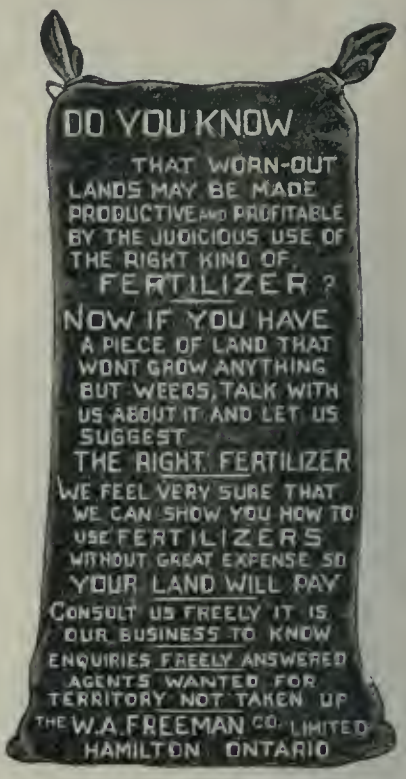
We have made arrangements whereby any of our readers may obtain the above valuable book FREE for ONE new subscription. This book is by E. Schuyler Mathews, and tells in a practical and clear manner how to lay out and plan a small garden or lawn.

If you have a neighbor who has a small garden, ask him to subscribe to Canada's only horticultural paper, and if you will send us his subscription, we will forward you the above book.

—ADDRESS—

The Canadian Horticulturist
506-7-8 Manning Chambers, Toronto

Profit Producing Fertilizers



Mention The Canadian Horticulturist when writing.

The Canadian Horticulturist

Vol. XXX AUGUST, 1907 No. 8

Outlook for Horticulture in the West

F. W. Brodrick, B.S.A., Horticulturist, Manitoba Agricultural College

MANITOBA is essentially an agricultural province. Agriculture has been her most important industry in the past. Agriculture is to be her mainstay in the future. Her broad, fertile acres, which have awaited for years the touch of man to make them yield forth their untold riches and feed a hungry world, will furnish homes and a livelihood for thousands in years to come. That her soil is phenomenally rich no one can dispute who has ever seen the mighty fields of waving grain. Besides, it takes such fertile fields as these to produce the "No. 1 hard," by which she is known the world over.

Naturally, in a country which is so large, so rich, and so sparsely settled as this country is, extensive agriculture would be the system most largely followed. Farms ranging in size from three hundred and twenty to six hundred and forty acres are the rule rather than the exception. The man who farms but a single quarter-section is but a small farmer indeed. On these large farms the largest machinery obtainable is procured and everything is done on an extensive scale. It is imperative in farming these big farms that the work be done in the quickest manner possible, as the growing season is short and the grain must have time to mature.

Wheat has been and still is the principal crop grown by the Manitoba farmer. Fields have been sown to wheat for four and five years in succession, summer-fallowed and sown to wheat again. The only attempt at rotation has been the summer-fallowing and the occasional introduction of one of the coarser grains. This continual growing of wheat is bound in time to deplete the soil of its fertility, and the system of farming eventually will have to be changed.

Evidence is already to be obtained in some of the older parts of the province that the soil is losing its old-time fertility, and that the system of continuous wheat growing is no longer profitable. The final outcome will be that the farms will become smaller, farming will become more intensive, a better rotation will be followed, and a greater variety of crops grown. With the advent of the day of mixed farming, people will begin to take more interest in the production of the luxuries of life rather than the mere necessities. Fruit and vegetables will be grown more extensively and more attention will be paid to home improvements than at the present time.

Fruit growing has never been carried on in this western province on a very large scale. This in a great measure is due to the fact that money could be made more easily out of the growing of wheat, and that as yet comparatively little is known about the fruit growing possibilities of the country. That fruit can be grown with fair success is every year being demonstrated at the experimental farms and by a few pioneer growers scattered throughout the west. Careful attention has to be given to the care and cultivation of the fruit and a rigorous selection made of varieties to ensure success in this department of agricultural work. Nevertheless, a vast field is thrown open along horticultural lines throughout the west. Much will be done in the future in testing varieties and improving varieties already grown.

A splendid field is also open in the west in the line of vegetable growing. The possibilities for growing truck and vegetable crops on a commercial scale throughout the country are especially good. Numerous classes of garden vegetables may be grown with good success. Besides, a splendid market is afforded in the western towns and cities for larger quantities of garden vegetables than are grown at the present time. Many farmers throughout the west aim to have each year a well-kept garden, from which they can supply their household with fresh, appetizing vegetables. Nevertheless, in many western homes vegetables are rarely seen on the daily bill of fare. This absence of one of the most wholesome classes of human food is due largely to the amount of time required for the preparation and care of the garden, but the effort expended in the care of a garden will be well repaid in the increased health and happiness of the household.

The matter of home adornment, for many good reasons, has not received the attention throughout the west that the subject merits. The pioneers who first broke the prairie had more urgent things to attend to than the making of fine lawns and the planting of flowers. They had first to provide a home and the necessities of life. Happily, in the older parts of the country, these days of pressing need are over and people have more time to devote to the improvement of their homes. In passing through the country, one is struck with the number of fine, comfortable farm buildings that are to be seen on every side. Effort is also being expended to decorate these places and make them more homelike and attractive by the planting of shade and ornamental trees and shrubs, and by the planting of flowers. In no place in Canada will better returns be obtained from the labor expended in the planting of trees and flowers than on the western prairie. They serve to give a touch of natural beauty to the home picture which greatly relieves the bareness of the surroundings.

The foregoing will serve in a slight way to show the importance of horticultural work in the west and the need of more instruction on horticultural subjects. Therefore, one can easily understand the important place that the Manitoba Agricultural College will take in this spread of agricultural information. It will be in the forefront to give the people of Manitoba and the west all that is newest and best in the line of agricultural instruction; while its aim

For All Canada

I am pleased to note the improvement that is being made in THE CANADIAN HORTICULTURIST. It keeps in touch with the horticultural interests of all Canada. May it meet with continued success.—F. W. Brodrick, B. S. A., Horticulturist, Manitoba Agricultural College, Winnipeg.

will ever be to foster a greater love for the noblest of all professions.

The department of horticulture and forestry will be more particularly interested in the spread of horticultural knowledge than the other departments, which will be interested in the spread of knowledge concerning animal husbandry, dairying, field agriculture, and so forth. This information will be given out in various ways. The most important phase of the work will be the instruction given to the students during the college course. The various subjects pertaining to horticulture, including fruit growing, vegetable gardening, landscape gardening and floriculture, will be given due prominence in the college curriculum, while advantage will be taken of opportunities afforded to discuss horticultural problems at farmers' institute meetings and similar gatherings held throughout the country. As the country is rapidly developing, the various departments of the college will necessarily develop with corresponding rapidity to meet the demands for more instruction in all branches of agricultural work, as the people of the west demand all that is newest and best in every departmen of human endeavor.

Larger Orchards, Smaller Trees

A. McNeill, Chief, Fruit Division, Ottawa

ALL orchard practice is relative. Whether we shall plant thirty apple trees or 100 apple trees to the acre, is a question intimately related to varieties to be planted, the skill of the planter and the methods of his orchard practice. Personally I believe that the practice of the future will be more trees per acre, but the trees will be smaller.

A Splendid Display of Apples Grown in British Columbia

I also believe that the number of acres in one orchard will be increased. The tendency seems to be larger orchards and smaller trees.

This is the direct result, partly of competition among ourselves and with other apple growing countries, and partly the extraordinary increase in insect and fungus enemies. Competition requires better fruit; insects and fungi make it more difficult to get it. The owner of a small orchard is too busy with other things to acquire the necessary skill to grow good fruit. He thinks he cannot afford an expensive outfit for spraying and in any case, other work is pressing when spraying ought to be done. Of course it is only a few years till his trees yield him little or no profit. The man that has less than five acres of apple orchard is responsible for much of the poor fruit that disgraces the Canadian apple trade at the present time. With five acres or more of orchard a grower finds it worth while to provide himself with tools suitable for the work in hand. He appreciates the fact that a day spent in spraying may yield him returns ten to twenty times the value of the wages for the time occupied. If he puts the same time on his oat field he can hope for little more than simply good wages at best. A large orchard stimulates a man to read books and horticultural journals, and attend fruit growers' meetings. The larger orchard yields the profits.

Smaller trees are also the result of these changed conditions. The expenses of an orchard may be roughly divided into two classes: First, the expense of tilling the soil; this is calculated by the acre; and second, other expenses pertain to the individual tree, such as pruning, spraying, picking, etc., and must be calculated at so much per tree; but ultimately all expenses should be reduced to the cost of growing, per barrel or per box.

Which yields the greater net revenue, the larger tree or the smaller tree? We arrive at a conclusion in this way: The ground rent and cultivation is practically the same for either large or small trees, and amounts to somewhere in the neighborhood of twelve cents per tree, presuming that there are fifty trees per acre. The operations of pruning, spraying and picking, not to speak of thinning and hand-work in either lines, amount to at least twenty cents per tree if properly done. The three operations of spraying, pruning and picking are almost twice as expensive on big trees as on small trees yielding the same in the aggregate. In addition to this, the small treee is not so readily affected by the wind. The "drops" are of more value as a waste product and the trunk of the tree is much healthier. On the other hand we might say with reference to spraying of large trees, that not only is it more expensive to do the work, but in many cases it is absolutely impossible to do it well. The tips of the branches are at such unmanageable distances that they do not receive their share of the spraying liquid.

I examined an orchard infested with San Jose Scale this spring that had been well sprayed with lime and sulphur, except at the extreme tips of the branches. An examination of these showed that there was a sufficient number of scale left behind nearly every fruit bud to re-infest the fruit if any should set. It is probable that ninety-nine-hundredths of the insects were killed, but the one-hundredth part was left just where it would do the most injury. As far as this season's crop was concerned, the owner, unless he was a careful observer, would conclude that spraying was a failure; though in all probability it should have been pronounced a great success.

A small tree requires more skill to train and prune, but the best results cannot be looked for except this skill is acquired. Smaller trees and larger orchards are undoubtedly in the lead.

Fruit Growing in the West

D. W. Buchanan, Director, Buchanan Nursery Co., St. Charles, Manitoba

A GOOD measure of success has already been attained in the growing of some kinds of fruit in the west, and the outlook is more and more promising as the years go by. In the early days there were many failures in growing grain crops, simply because the new settlers did not know how to farm to suit the peculiarities of our soil and climate. It did not take many years to learn that different methods must be followed here in order to achieve success in growing grain crops, compared with methods followed in other countries. What is true of grain applies with even greater force to fruits.

Professor Green, of Minnesota, perhaps the best known fruit authority in that state, says: "It would be better that a man should know absolutely nothing about growing fruit, than that he should undertake to grow fruit in Minnesota on the same principles as are followed in the east." The exact words used by Professor Green are not here given, but the meaning is the same. What he has said of Minnesota applies with even greater force to Manitoba and other prairie provinces. The one who would grow fruit in Manitoba must study the conditions and conform to them. When this is done, growing fruit here will be a much easier and more successful undertaking than most people suppose. It is true that there have been more failures than successes in growing fruit here, but that is because the conditions under which attempts were made were such as to make failure a certainty from the start.

In the first place the stock used was entirely worthless for this country. Most of the stock planted in this country has been entirely worthless and altogether unsuited to the climate. Even yet, with the experience gained in the past as a guide, thousands of dollars' worth of worthless stock is annually imported. Much of the stock brought in will not succeed in the northern portions of Ontario, say, for instance, the lower valley of the Ottawa, so that it could hardly be expected to thrive here.

Many people, after attempting the impossible with worthless nursery stock, come to the conclusion that fruits cannot be grown here, and by vigorously asserting this belief they create a false impression. Others, by a careful selection of varieties and proper modes of cultivation, are succeeding where many have failed. Through the efforts of the few successful pioneer horticulturists, we have learned much that will enable any intelligent person to succeed in growing many varieties of fruit, if the proper varieties are secured and proper methods of cultivation are followed.

Of the small fruits, strawberries are generally considered the most uncertain crop here. One will meet thousands of persons who will state most positively that strawberries cannot be grown successfully in these provinces. They are quite certain, because they have tried and failed, but all the same, strawberries can be grown here successfully—just as successfully as any other crop. It is simply a matter of following a system of cultivation adapted to the country. The proper system has been worked out with great success, and has never been known to fail. Therefore it does not do to bank on what even a great number of people declare to be a fact.

A Busy Scene in Ontario at Raspberry Time

Currants of many varieties may be grown in almost any part of these provinces with good results, and there is no good reason why every settler should not have an ample home supply of this healthful fruit, if common sense and ordinary care is used in growing them.

In gooseberries, the range of varieties adapted to the country is more limited, but several good varieties may be depended upon. In our own grounds we have been more successful with gooseberries, perhaps, than with any other fruit crop, that is, when care in cultivation, and so on, is taken into account. Gooseberries have invariably been a heavy crop in our grounds.

Raspberries, especially a number of the red varieties, may be grown to advantage. Raspberries seldom suffer damage from spring frosts, and proper attention to cultivation and mulching will tide them through any ordinary drouth that we are likely to have. Most varieties require winter protection of the fruiting canes, if a really good crop is desired.

In tree fruits, we must admit that only a measure of success has been attained, and that within certain areas. There are certain sections of the country where a fair measure of success has been reached in growing standard apples. Only trees grown here are worth planting, and it is simply folly to send away to the states for tree fruits. Trees propagated from specimens that have stood our climate for years, are the only ones worth planting. This applies to apples, crabapples and plums. When this fact is understood by our people, there will be fewer failures and many more successful attempts to grow tree fruits in the three species named.

The outlook for tree fruits in at least a considerable part of these western provinces, is quite encouraging. The fact that some good orchards, numbering up to hundreds of trees, have been successfully established, gives great hope for the future. It is simply a question of planting only the best stock, propagated from the hardiest trees that have stood our climate for years, combined with originating new varieties here.

Apple Growing in Manitoba

A. P. Stevenson, Nelson, Manitoba

APPLE trees of sufficient hardiness to withstand the dry, cold winter of Manitoba are difficult to obtain. Thousands of dollars are spent annually on fruit trees that are worthless; they not only increase the size of the brush pile the season following, but they make our growers discouraged. My first trees were planted in Manitoba in 1874. Since then I have been experimenting, and now realize that a man must pass through great tribulation and possess tireless energy and perseverance in order to be a successful experimenter here.

One of the first essentials to success in the growing of apples on the prairies is a good shelter belt. This is comparatively easy to obtain since to the Dominion Government's cooperative tree-planting scheme, which in recent years has done much for the prairie settler in furnishing him with planting material, and expert advice as to its management free of charge. Sixteen years ago a large consignment, consisting of 500 trees of eighty varieties of so-called hardy Russian apple trees, were planted. At the end of the first year only twenty varieties were alive. These consisted of one or two specimens each of varieties of which thirty trees had at first been planted. From these individual hardy specimens our present orchard has been largely grown.

The question is often asked: How do our apples compare in size and quality with those grown in Ontario or farther east? Our summer and fall apples are equal in size and quality to the eastern product; our winter varieties, while equal in size and color, are not equal in quality to Spy, Greening, Baldwin and others for dessert use, but are excellent for culinary purposes. The trees are grown on high latitude principles; that is, headed low, or grown in bush form. The apples are much more easily picked from trees grown in this way.

One of the chief troubles is sun scald in March. This is a drawback on southern exposures. In order to reduce the danger from this trouble the trunks of the trees are wrapped from the ground to the limbs with old sacking. Canker is the next worst enemy ("cancer" would be a better name for it). It gradually works its way round the limb, finally killing it. Cutting it out to the sound bark and then painting the wound sometimes removes the trouble.

We have had little trouble so far with insects of any kind. Our trees have never been sprayed, but I have no doubt this will require to be done in the near future. Thorough cultivation is practised all summer. The land is heavy clay loam and perfectly level. On the north, the orchard is protected by heavy woods, and on the south by a few rows of Scotch pine. It is composed of 500 trees. A considerable number are young trees. Two barrels from one tree was our largest yield. A good crop was harvested last year, and the apples sold readily at four dollars a barrel. There are several young orchards coming into bearing in this vicinity. The day will come when we will be able to grow enough apples to supply Manitoba.

Cover Crops at Guelph

A few notes on some of the most satisfactory cover crops tested in the orchard at the Ontario Agricultural College, Guelph, were prepared for THE HORTICULTURIST by H. S. Peart, B.S.A., of the Horticultural Department. Hairy vetch has given excellent results as a ground cover and, with the exception of the past two winters, has always come out fresh and green in the spring. It should be sown at the rate of thirty to thirty-five pounds an acre if a good cover is desired. Light sowing has given very indifferent results. The high price of seed is a slight drawback, but as the demand increases, no doubt the seed may be secured somewhat more cheaply.

A Scene in British Columbia

Among the clovers, red and mammoth are about equal in value. Both are perfectly hardy and form a heavy mat of herbage when sown at the rate of twenty pounds an acre about the middle July. Crimson clover makes good autumn cover, but does not winter well, except in the southern sections of the province. Where crimson clover does not kill out during the winter, it is one of the most satisfactory crops that can be grown. As the seed is larger than that of red clover, more must be sown.

Alfalfa is one of the most satisfactory crops we have tried. It makes an abundance of top in the autumn, is perfectly hardy on well-drained soils, and has the desirable characteristic of beginning growth early in the spring. From twenty to thirty pounds an acre will be required for best results.

Winter rye, the old time favorite for an orchard cover, is undoubtedly the best non-leguminous crop. It may be grown on soils that will grow an indifferent crop of clover, and after one or two crops of rye have been plowed under, clover may be successfully raised. From one to one and one-half bushels of seed an acre will give a heavy crop of foliage to turn under in the spring.

Rape, although largely grown, has many disadvantages. It does not stand the hardships of winter, and as a consequence is not so desirable as rye or clover. The tall, heavy tops hold the rains and dew till nearly night, making picking rather unpleasant. Where the fruit is harvested early, a crop of rape will give a great amount of green manure to plow under in the fall, and if left until spring the stalks will hold a considerable amount of snow. Six to eight pounds of seed sown broadcast or two to three pounds sown in drills is sufficient for a good stand.

Grass peas, Soy beans, and turnips all have a place among orchard crops, but are not so valuable as the others mentioned. It is usually advisable to follow a rotation. By sowing a part of the orchard with each of three or four crops their individual value for local conditions can be accurately ascertained.

Fruits for New Ontario

Chas. Young, St. Joseph Island

For success and profit, with quality as a second consideration, I would recommend the following varieties for planting in new Ontario: Apples, summer, Yellow Transparent, Duchess, Red Astrachan, Charlamoff; fall, Alexander, St. Lawrence; winter, Wolf River, Wealthy, Scott's Winter. Pears cannot be grown successfully and are poor in quality here. Cherries — Richmonds, Montmorency, English Morrello. Plums—Glass Seedling, Lombard, Moore's Arctic. Japan plums are somewhat hardier but the quality is poor.

Most varieties of strawberries will do well, particularly Clyde, Haverland and Glen Mary. The same may be said of currants, among which Saunders, black; Versailles, red, and White Grape are the best. In gooseberries, Pearl, Downing, Red Jacket and among the English sorts Crown Bob, Whitesmith and Industry. The best red raspberries are Loudon, Marlboro and Cuthbert. Blackcaps are not a success nor are they saleable. We are too far north for blackberries, but Eldorado does fairly well.

Varieties for the Prairie Provinces

MANY varieties and kinds of fruit and ornamental trees and shrubs can be grown with success in the west. In some parts, certain varieties of fruits have been and can be grown to perfection. If western growers will select hardy varieties and grow them in suitable conditions and in those localities where the climate is not too severe, and where the season is long enough for a full maturity of wood and bud, the trees will be healthy and give good results.

In past years, considerable stock has been planted, but in many cases a poor selection of varieties was made. Peach trees have been sold and planted in the west, also tender varieties of plums, grapes, apples, pears and small fruits. The grower who selects these classes of fruits might just as well burn his money. Recently a change has taken place. Growers are learning that only certain varieties will do well. Most of those that are grown successfully in the east are not adapted to western conditions, but there are others that are suitable. That this is so is evidenced by the following letters:

GROWERS' EXPERIENCES

"My crabapple trees nearly all bore fruit last year, some of which was as large as the best grown in Ontario," wrote Mr. David Alexander, of Oakville, Man. "The great secret in their culture is proper cultivation for the first two years at least, and to place fertile soil around the roots when planting." In a letter from Mr. N. Jamieson, of Lidstone, Man., the following information is given: "I am growing several varieties of gooseberries, including Downing, Industry and Pearl. All came through the severe winter of last year, unprotected, and did not winter-kill. My Cumberland black-caps came through with a slight protection, by covering the canes, and last year they bore a heavy crop of berries." Mr. T. A. Scholes, of Killarney, Man., writes: "I have been growing the Shaffer raspberry and some varieties of black-caps for some years with success." A letter from Mr. Jno. Osborne, of Winnipeg, states: "Raspberries, currants, gooseberries and plums do well. They stand our winters all right." Mr. Max D. Major, of Winnipeg: "The Loudon raspberry has proved hardy; Marlboro, also, has done well."

The following is taken from a letter written by Mr. Jas. Quinton, of Cardston, Alta.: "My experience has proven that trees will grow and bear fruit in Alberta." Mr. Wm. Hutchison, of Lloydminster, Sask.: "My raspberries, gooseberries and black currant bushes have done well." Mr. J. Leslie, Swan River, Man.: "Eastern raised soft-silver maples planted here have done well. They are such fine-looking, ornamental trees that they command the admiration of all who see them." For the benefit of the readers of THE CANADIAN HORTICULTURIST in the west, the following lists of varieties of fruits and ornamentals has been compiled from the recommendations of the western experiment stations, western nurserymen and horticulturists:

APPLES

Anisim (Russian No. 427), Anis (Volga), Antonofka (Russian No. 236), Anisette (Russian No. 185), Blushed Caville, Cross (Russian No. 413), Charlamoff (Russian No. 262), Duchess of Oldenburg, Glass, Gipsy Girl (Russian No. 1227), Hare Pipka (Russian No. 202), Hibernal (Russian No. 378), Northwest Greening, Ostrekoff (Russian No. 472), Patton's Greening, Russian Transparent, Repka Kistaga, Simbrisk No. 1, Silvus No. 1, Wealthy.

Lord Suffield Apple Tree in British Columbia. Fourth Year from Planting.
Photograph furnished by R. N. Palmer, Victoria

CRABAPPLES

Gen. Grant, Hyslop, Transcendent, Virginia, Whitney Siberian.

CHERRIES

Compass, Litham, Lutovka, Ostheim, Vladimer.

PLUMS

Aitken, Cottrell, Cheney, Desota, Don, Early Roscoe, Forest Garden, Hawkeye, Odegard, Surprise, Stoddart, Wolf, Weaver, Wayland, Wyant.

GRAPES

Beta (the only variety that has done well).

RASPBERRIES

Columbian, Cuthbert, Cumberland, Golden Queen, Gregg, Hilborn, King, Loudon, Marlboro, Miller, Shaffer.

CURRANTS

Cherry, Fay's, La Versailles, Lee's, Moore's Ruby, White Grape.

GOOSEBERRIES

Downing, Houghton, Industry.

ORNAMENTAL TREES AND SHRUBS

Aspen, Siberian almond, alder, green ash, cut-leaved birch, common white birch, sand cherry, cottonwood, dogwood, Siberian dogwood, variegated Siberian dogwood, American elm, honeysuckle Alberti, honeysuckle flava, larch, linden (bass-wood), lilacs, Manitoba maple, Asiatic maple (*Acer Tartaricum*), soft maple, mountain ash, scrub oak, balsam poplar, Carolina poplar, Russian poplar, silver poplar, *Pyrus baccata*, sumach, snowball, syringa, *Spiræa Van Houttei*, weeping willow, golden willow, laurel leaf willow.

EVERGREENS

American arbor vitæ (needs protection from wind), Jack pine, dwarf mountain pine, black spruce, balsam fir, blue spruce, *Juniperus sabina*, Virginian Juniper, Scotch pine, stone pine, Norway spruce, white spruce.

HEDGE PLANTS

Buckthorn, cottonwoods, Russian poplar, *Populus laurifolia*, *Populus Nolestii*, Russian willow, soft maple, ash-leaf maple, American elm.

ROSES

Banshee, Clio, Henry Martin, Marshall P. Wilder, Madam Plantier, Magna Charta, Persian yellow, *Rosa rugosa*, Salet Moss, Sweet Briar, Scotch Yellow, Ulrich Brunner.

SHRUBS

Buffalo berry, purple barberry, *Berberis Thunbergii*, bittersweet, *Caragana arborescens*, *Caragana frutescens*, flowering currant, Chinese matrimony vine, cotoneaster, *Clematis ligusticifolia*, *Clematis recta* (herbaceous), *Clematis Virginiana*, traveller's joy (*Clematis Vitalba*), Russian olive, *Hydrangea paniculata* (needs winter protection), Russian honeysuckle (*Lonicera media*), American ivy, pæonias, southernwood, red snowberry, *Spiræa Billardii*, *Spiræa arguta*, golden spiræa, *Spiræa Thunbergii*, *Spiræa Douglasii*, high bush cranberry, *Viburnum opulus*, *Viburnum Lentago*, *Viburnum Lantana*.

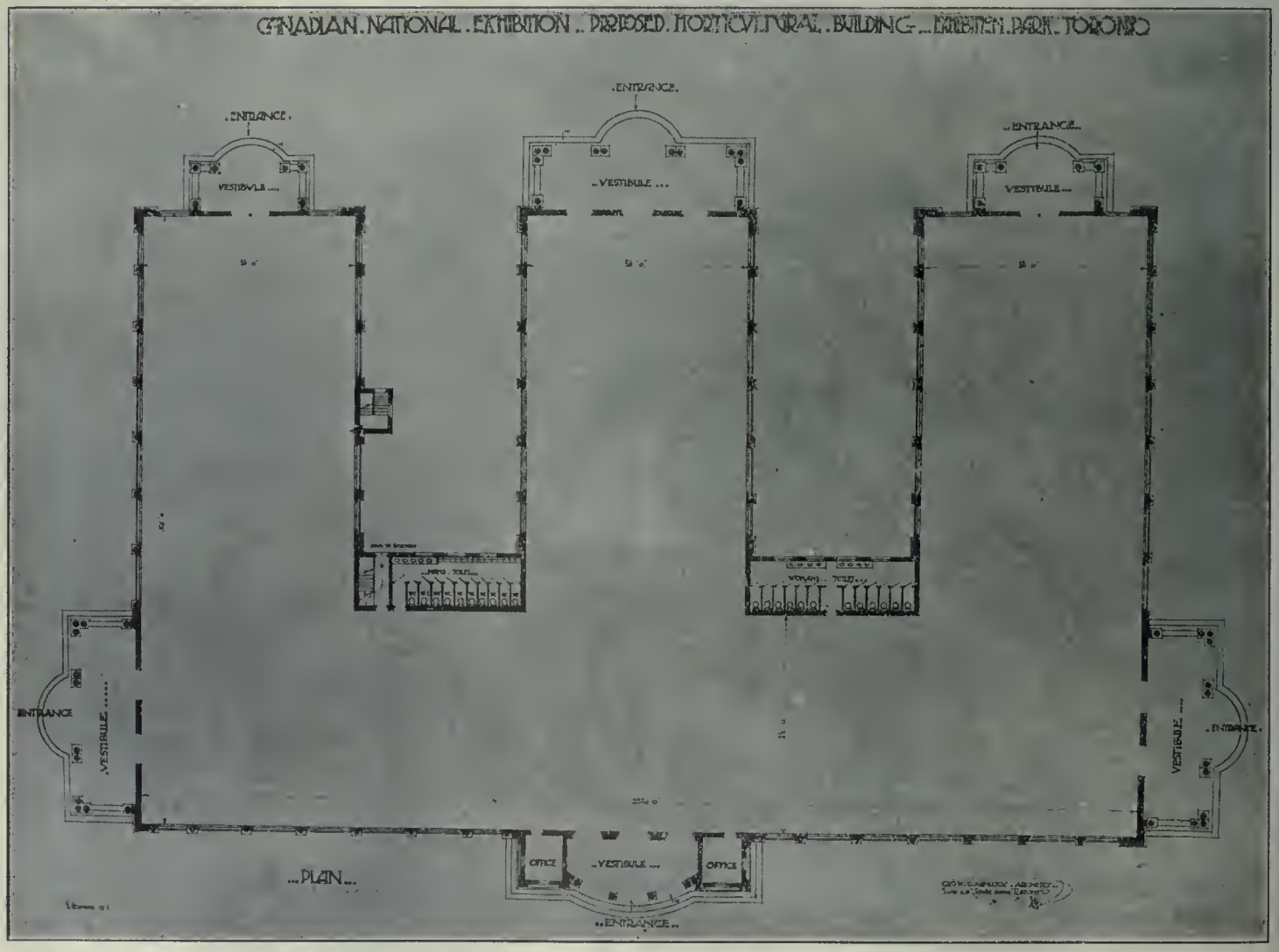
Harvesting Apples

G. N. Gordon McKeen, Gay's River, N.S.

When harvesting apples, it is best to wait until the dew of the night has disappeared, as apples keep best when picked dry. Remove them at once in barrels to a cool house or shed. If not to be marketed or exported at once, place them in a frost-proof cellar before frost comes.

When packing for market, do so in an attractive manner and pack honestly. All apples in the barrel or box should be equal in value and size. The proper package is the bushel box, as it holds a quantity convenient for family use. When the box takes the place of the barrel, many more apples will be used.

Cool the fruit before shipping.



Ground Floor Plan New Horticultural Building, Canadian National Exhibition.

The wings are designed to accommodate in order from left to right, fruit flowers and vegetables respectively.

Perennials: The Backbone of Manitoba Gardens*

Dr. H. M. Speechly, Pilot Mound, Manitoba

IN busy Manitoba, where so few can spend all the time they would like in the engrossing pleasure of cultivating flowers, it is easy to make good fellow-gardener and yourself, so that each has the benefit of the other's garden.

The object of this paper, then, is to exhibit the fine qualities of some of our standard perennial plants as early bloomers, as hardy bloomers, and as free, generous bloomers. It will enable us to handle the subject a little more plainly if we consider perennials in two classes—the first being the bulbs or bulbous-rooted, and the second being the fibrous-rooted perennials. It must not be supposed, however, that this paper aims at being exhaustive in its treatment of the subject. Far from it. Rather the aim of the present writer is to be suggestive and stimulative, so that others who have not taken much interest in these fine plants may be induced to pay some attention to them.

A Beautiful Garden Spot in Manitoba

the claim that perennial plants form the backbone of our gardens, especially if we are amateurs. It is surprising, indeed, after all that has been written on this subject in the farming papers, that so few perennials are to be seen in farm gardens, where the house-wife is usually the gardener and nearly always has plenty of domestic duties as well. For, indeed, quite apart from the cheapness, the hardiness, and durability of perennials, there is another most valuable characteristic about this class of plants in the fact that amongst them are found some of the earliest bloomers that we can raise in this climate. Therefore, if we can grow plants which are hardy enough to live for years and yet will give you flowers as early as May and June, surely they are the very plants we need. Moreover, many of these plants will easily divide at the roots so that you can multiply your stock without further expense; and better still, you can give roots away to your friends so as to start them in the good, old-fashioned cult of gardening. A great part of the pleasure of gardening lies in the friendly habit of giving away some of the results of your care and labor. Often, too, a mutual exchange will take place between a

*A portion of a paper read at the last convention of the Western Horticultural Society.

BULBOUS-ROOTED PERENNIALS

Taking then first the bulbs and bulbous-rooted, we may readily recall that the earliest wild flowers on our prairies are those of the bulbous-rooted *Anemone patens*. It is not surprising, therefore, that amongst the most satisfactory of our perennials are just such plants. Earliest of all seems to be the Siberian squill, a dark, reddish-purple bulb, which may be planted out-of-doors in October either in a flower-bed or, better still, in the sod of your lawn, where early in the following May, or even in late April, its green spike will push through the sod, open, and push forward its sky-blue hanging bells well in advance of the leaves. I am trying the grape hyacinth to see if it can equal the squill in earliness of bloom. The depth at which these bulbs should be planted is from three to four inches. It is well to put them where you will not need to mow the grass too soon in the spring, so that the flowers may seed and the leaves come to full maturity. Then the squill will naturalize, especially if the spot is sheltered from the wind, which

A Corner of Dr. Speechly's Garden in Pilot Mound

The hedge is Manitoba Maple, *Negundo aceroides*

is a greater enemy of the cultivated garden than frost. After the squill has come well into bloom it is quite usual to find that the dwarf dark blue iris, *Iris reticulata*, beats the early tulips by coming into flower the first or second week in May.

DWARF HARDY IRISES

The elevation of Pilot Mound is 1,550 feet above sea level, and, therefore, such places as Winnipeg and Morden, and all bush-sheltered spots, produce flowers a little earlier in the season, often two weeks earlier. This dwarf blue iris is a miniature "flag." Its little sword-like leaves push upwards, but, before they have pushed more than an inch or two, up come the flower buds three or four inches high, which stand frost quite hardily—not so the fully-opened flowers, which may turn black with any sharp, untimely frost. I suggest that there are other dwarf hardy irises which would be an addition to our early blooming perennials, such for instance as the pale blue *Iris stylosa*. The best collection of these dwarf kinds is grown by Messrs. Barr, of King St., Covent Garden, London, Eng. Now that so many Manitobans run over to the Old Country and back, how would it be if some of them could remember to bring over a few dormant roots of these or any other perennials? I refer to such kinds as are not listed in our local catalogs, which should always be patronized in preference to those of outside growers. We Manitoban gardeners ought to support the efforts of our home horticulturists; but in order to avoid being merely provincial ourselves, let us keep our eyes wide-awake. It will do our home professionals no harm if they know that the amateurs send for the catalogs of the leading horticulturists of the Old Country and the United States, and as a rule the home horticulturists have the pull over all others in the matter of hardy roots and shrubs.

THE TULIP IN THE WEST

But to get back to our bulbs, we come to the important tulip epoch in our gardener's year, which commences about May 15 at this elevation. How beautifully the early Duc van Thol scarlets blaze, how golden the yellow of the Chrysolora tulip, and how dazzling are the late tulips named after old Gerner, who waxed enthusiastic about them 450 years ago! The tulip is a perennial of great value. It also belongs to the "aged class" when one considers that the average bulb is seven years old as sold commercially. This information startles those ingenious folk who are so anxious for you to "save them some seed." Tulip bulbs will last more than a year, especially if they are of the "Old English" type, but you must not disturb their roots much; it is better to leave them where you first plant them, and protect them well each fall with straw, leaves, or brush, so arranged that the wind cannot blow the protective material away. Even supposing you want to plant annuals in the same bed, you can easily manage that.

When you put them in some time in October—the earlier the better—plant your tulips six inches deep and six inches apart; that is easy to remember. A tulip should be put in not less than four inches deep, preferably six inches, because that depth suits this climate better and because, when you come to plant your annual seedlings into a tulip bed, you can do so without interfering with the bulbs beneath. The result is very satisfactory, provided the bed has been thoroughly prepared in the fall. The power of bulbs to stand frost and drought is a very curious faculty. Think of the prairie lily bulb, which is usually found three or four inches below the surface. One-half of the year it is frozen solid, and the other half it is alternately wet and then dry as a bone externally. Tulips seem to approach the prairie lily in hardiness, but do not bloom as well the second season as the first.

THE BLEEDING HEART

So much for tulips. In June you may look for the blooming of that splendid, fleshy-rooted, almost bulbous-rooted plant, the bleeding heart—we used to call it "duck's bill" when I was a boy. It is a noble plant, rising two or three feet above the ground in graceful sprays of leaves spreading from its fleshy red stalks. Grow your bleeding heart where the wind cannot tear it; allow it lots of room in a partially shaded spot with a fair allowance of moisture; but beware of letting greedy growers like the achillea compete with it or you will find that in the struggle for existence they will bleed your bleeding heart.

I am not wishing to use the scientific names of plants more than I can help, but it is here necessary to mention that this beautiful plant is known botanically as *Dicentra spectabilis*. There is a miniature relative of the bleeding heart which has no popular name, but is known as *Dicentra eximia*. It has this advantage that, though it is smaller and less handsome than its larger relation, it blooms quite two or three weeks earlier and is perfectly hardy.

In some catalogs you will be attracted by the boasted earliness of three bulbs, the snowdrop, the crocus, and the glory-of-the-snow, *Chionodoxa*. It is stated that their flowers follow close on the disappearance of the snow. Well, snow in Manitoba goes any time from the end of March to the third week in April, and whenever I have planted these bulbs they never flower earlier than the last week of May, and usually come out a little later. In this climate and at this elevation these three irregular, uncertain bloomers, quite unlike tulips, which are certain starters undeterred by frost. They are quite desirable when they do come to maturity, but they bloom during the tulip period which lasts six weeks if you plant earlier, middle blooming and late tulip bulbs.

All bulbous and bulbous-rooted plants, and, in fact, nearly all perennials, are the better for a good covering of snow in the winter and a light covering of straw or strawy manure in the fall to prevent their springing too early in the dangerous time all through April. At that time, after a hot, mid-day sun, keen frosts blacken the growing crown or spike of any precious plant.

IRISES IN VARIETY

Coming now to the tall iris tribe, it is satisfactory to be able to recommend all the varieties of this handsome class, whether English, German, Spanish, or Japanese. Our French friends sometimes style them "*les fleurs-de-lis*," and quite often they are known as "flags." Bravely do they brandish their sword-like leaves against whatever winds may blow; but the graceful jointed flower stems are too tall to stand very strong blasts. More delicate still are the lovely veined and bearded flowers which are blackened and curled if knocked about by heavy winds. Therefore, they do better when protected by shrubs and hedges, especially if planted in moist places. In warmer climates one often sees irises doing well with roots half showing, but here it is well to have them an inch or two below the surface.

THE VALUE OF THE PEONY

Another fleshy-rooted perennial of the first importance is the peony, which comes into bloom just as tulips are going out of fashion at the end of June. There is nothing course about the modern peony; its flowers are large, numerous, glowing with color, and often sweetly scented, while its glossy green leaves are ornamental long after the flowers have blown. It is a plant as simple to grow as it is hardy. Treat it just as a careful gardener treats good rhubarb, exactly the same except as to position. The peony should have a place of honor, but do not let it be grown on a wind-swept spot or its large, heavy blooms will be spoiled. When your peonies bloom, you want to have calm, sunny days with showers interspersed, so that the tightly packed knobby buds may unwrap until they become white balls of petals centred red, or globes of brilliant crimson or oddly-striped rosettes swinging out of the abundant leafage.

A driveway well sheltered with trees and ornamental bushes is an ideal spot for planting peonies, but they will do well in beds where they have lots of room. After moving peonies, you must not expect them to flower until at least

the second year after planting. From the third year onward, however, the flowers come royally if the roots are well supplied with well-rooted manure. I would give a clump of peonies plenty of room because they will not stand competition with the roots of shrubs.

LATE SUMMER BULBS

Of the later summer bulbs, of which the hardiest and easiest to grow is the tiger-lily. Treat all hardy lilies well and they will respond handsomely about mid-August. First dig a hole a foot deep, then put about four inches of well-rotted sod and cow manure, and finally sand this an inch deep with good sand. Lay in your bulb on the sand and cover it firmly with black loam. I am trying the following lilies: *Lilium rubrum*, *Lilium auratum*, *Lilium longiflorum*, and *Lilium candidum*, all hardy in the east. Like tulips, they need to lie in a well-drained bed.

For those who like day-lilies, the various kinds of hemerocallis are useful additions to the really hardy growers. Personally I like flowers that will last more than a day; it is so disappointing to see a fine flower curl up and shrivel forever almost before one realizes its beauty.

(To be continued in next issue)

Lawn and Garden Hints for August

MIDSUMMER garden work is the lightest of the season, but one can find plenty to do. However, much extra work can be avoided by systematic planning. If this is done, by the time August rolls around, we can tell pretty well just where our plans were faulty, and what changes or improvements should be made next year.

Many bad weeds will be trying to go to seed. When a weed matures seed, it produces a lot of them. Constant clipping or spudding on the lawn and hoeing in the garden will keep them within bounds. Weeds are best killed by working when the sun is hot, as no one will doubt who has tried it. For conserving moisture, however, a cooler part of the day is preferred, as after sunset. Such things may seem to be of little importance, but those who have had experience find that these trifles help to make a good garden.

With the Elderberries in Nature's Garden

THE KITCHEN GARDEN

There is so little planting to be done in August, that it is apt to be overlooked. Nevertheless, it is of importance if full value is to be obtained from the garden.

Several varieties of beets grow quickly. If planted the first of the month, they will be large enough for the table before cold weather. Lettuce may still be sown if the young plants are shaded with cheese-cloth. Early varieties of bush beans will produce a crop for fall use, but they should be planted in a place not subject to early frost or where they can be protected if necessary. Sow late kale at once.

Did you make a cold frame as suggested in this column last August? If so, please favor THE CANADIAN HORTICULTURIST with a brief letter, stating your experience in making and caring for it. If not, make one at once, as it is an easy method of securing home-grown vegetables in late fall.

THE FLOWER GARDEN

In the out-door garden, dahlias should be fertilized once a week while the buds are swelling. These plants are gross feeders. Try putting in some cuttings of the finest dahlias. Grow in pots until late in fall and then put them in some place where there is no danger of freezing until time to start them in the spring.

Keep the flowers picked off of all kinds of plants as soon as they commence to fade. By this means, the blooming period may be extended.

Pansies may be grown from seed. For April bloom, sow now in cold frames. English daisy may be grown similarly.

The seeds of hollyhock, delphinium, aquilegia, campanula, coreopsis, gaillardia, papaver, and many other herbaceous perennials may be sown this

month and transplanted to the border late in the fall or early next spring, to furnish bloom for next season. If transplanted in the fall, care should be taken not to injure the roots or the small seedlings, or allow them to wilt. They should be protected when transplanted and afterwards against severe freezing weather.

Many of the best annuals are in flower. If one wished to improve the size and color of such varieties as they are growing, they may do so by seed selection. Mark and save the seed from such flowers as meet your ideal. In a few years, one may have a strain of seed much superior to any that can be purchased.

An interesting feature of an amateur garden may be made by budding several varieties of roses into the same stock and training it into tree form, or rosebuds may be put into apple, pear or other trees with fair success. The operation is not a practicable or commercial one, but is a novelty worth trying by amateurs.

THE INDOOR GARDEN

All who intend to have a window garden this winter should get things started this month. Decide upon the plants you want to have and make all necessary preparations for them.

The narcissus should be planted in August if wanted for Christmas bloom. Rich, porous soil should be used and the bulbs should be set deeply. Place bulbs in a cool place and where it is dark, so that they will not start into growth. In about six weeks they may be brought into the light. The season of bloom may be lengthened by bringing only a few pots into the light at one time.

Bermuda lilies wanted for Christmas should be planted early this month. Supply plenty of drainage and use clean pots. Place them outside on a bed of ashes to avoid trouble with worms which might crawl into the pots. A covering of hay or straw will be needed to prevent too rapid drying out.

Pot some freesias for early flowers. Place eight or ten bulbs in a five-inch pot. Be sure to use plenty of drainage material. Place them away in a shady place, give water sparingly until growth begins to show. Bring to a lighter place after growth is well started.

Put in cuttings of geraniums, heliotrope, coleus and so on for winter bloom or display. Pot begonias, cyclamen and primroses for winter flowering. Most of the plants intended for the winter garden will now need re-potting. Those out in the garden should be gone over and prepared for lifting in a few weeks.

A week or two before pansies are wanted for a show, give a watering with some weak liquid manure twice a week.—E. F. Collins, Toronto, Ont.

Shipping Flowers

Most amateur gardeners have occasion at some time or other to send flowers by post, express, or other conveyance. What is more annoying to both sender and recipient than to have the flowers arrive in a somewhat damaged condition? The causes are various. The flowers may have been too far developed, or perhaps, were cut at mid-day, when much of their freshness has been lost. Unsuitable receptacles, such as thin cardboard boxes, which are very easily crushed, or paper alone should not be used.

Whatever receptacles are used they should at all times be shallow, or the flowers will be injured by their own weight. Baskets are very well for short distances, and if well lined with paper give satisfactory results. Always allow the paper to extend beyond the ends and sides, as it can then be folded back over the top. Ship flowers that are just opening, and they should be gathered in the early morning, as they are then quite stiff and fresh. Should it be preferred to gather them in the evening, they should be placed upright in water in a cool store-house, ready for the following morning for packing. Forced flowers and ferns should be favored with the same temperature as that they have been grown in.

It is a bad plan to pack too many layers of flowers in one box. Foliage may be used at the bottom, and light greenery such as *Asparagus Sprengeri*, smilax, and fern, may be used between the flowers and the lid. Flowers should also lie in small bunches as they are gathered. Start at one end of the box, and lay them in regular order, their heads all pointing one way, and one bunch deep, having these a little farther back so as to avoid the flowers of the second row pressing on those of the first. Should it be necessary to pack more than one layer in a box, use a layer of soft tissue paper between them. Firm packing is very essential, rendering movement impossible, but the pressure must be so slight that crushing is avoided.

Care of the Lawn

R. L. Canning, F.C.C., R.H.S.E., Davenport, Ont.

The care and treatment of a lawn is a subject that should interest both the amateur and the professional alike. It is not simply the mowing of the grass that makes or mars a lawn, it is the attention that is given it in the early stages, in its preparation, and in the springtime of each year. Watering and mowing will not make good grass if the grass is not there in the first place.

In the making of a lawn see that it is level, that the drainage is good, and that the depth of soil is sufficient to insure good root action. When the ground is fit to receive the seed, select a mixture of grasses that will stand hard wear and usage. Sow thickly, roll well and evenly, cover the seed with the back of a wooden rake, or better still, a brush stuck between two boards, and draw this over the ground and crossways, which will insure an even distribution of seed and a fine surface. When the seed has germinated and is about an inch high, roll well and persistently. Watch for bare spots. Should these appear, sow more seed and roll well.

Be very careful when mowing in the early stages. See that the knives are not too low and do not mow too often. If dry weather sets in, water when convenient and with judicious management. As regards leaving the grass on the lawn when cut there is only one answer: "Don't do it." Collect it, or better still, use a machine with a box attached. During the summer, roll as often as good rains permit and where circumstances allow.

In the springtime a dressing of some kind should be given to every lawn, either of fine soil or of light manure or a dressing of soot, sown when rain is near at hand. Sulphate of ammonia is a splendid top-dressing, but it must be sown very sparingly and even all over and watered in, or sown when rain is falling or just previous. It is surprising what it will do in making a bright sward. Roll well and level any obstacles or worm hills after the winter has passed away and make a solid turf for the ensuing summer. As to weeds they can be kept in check by attention, such as hand weeding, which is, after all, the most effectual and satisfactory.

Aconitum.—Monk's Hood.—The aconitums vary in height from three to four feet. They also vary in color from white to dark purple, and are hard to surpass for color in the border. They resemble very much the Delphiniums, and as cut flowers for large vases they are excellent. Unfortunately people are afraid of them because they are poisonous; but so are laurel, arbutus, foxglove, oleander, *Primula obconica*, and others. The aconitums flower from July to October, and the best varieties are as follows: *Aconitum barbatum*, *Aconitum ficheri*, *Aconitum autumnale* and variety bicolor. This last one produces blue and white flowers, and is very beautiful.—Roderick Cameron, Niagara Falls South.

Not only are beach plums, *Prunus maritima*, valuable for their fruit, but the bush itself is an excellent one for planting near the sea. It delights in such a situation, the soil and air being just to its liking.

The one important item in working clay land is timeliness.

An Attractive Flower Garden

W. T. Macoun, Horticulturist, Central Experimental Farm, Ottawa

THERE is a garden in the city of Ottawa which, probably, has more bloom in it during the summer months than any other private garden

Eremurus Robustus in Mr. Lewis' Garden

in Canada. It certainly has more bloom than any private garden in Canada with which the writer is acquainted. The garden referred to is that of Mr. J. B. Lewis, Dominion Land Surveyor, and occupies about two acres, or more than twelve city lots. Mr. Lewis became enthusiastic about flowers five or six years ago. Beginning with a lot or two, he has gradually increased the size of his garden to what it is to-day. Mr. Lewis began gardening with little knowledge of plants or their culture, but he was determined to spare neither money nor work to acquire both.

Obtaining the catalogs of the best English seed firms he ordered some of practically everything in this catalogue. He also ordered large collections of herbaceous perennials, roses, azaleas, rhododendrons, ericas and such other ornamental shrubs and trees that took his fancy. The result was an enormous amount of material. Naturally he had many failures, but he has been able to get many things to succeed that had been considered too tender for this district.

Not content with getting plants, he determined to learn as much about them as possible, and so began a collection of books on horticulture, the result being that he has to-day the best private collection of modern horticultural works that the writer knows of in Canada. His library includes Sargent's Sylva. He also has as complete a set as he could procure of the Reports of the Royal Horticultural Society of England. Such works as Bailey's Encyclopedia of American Horticulture and Nicholson's Dictionary of Gardening, may be found among scores of other books on horticulture.

To return to the garden: Mr. Lewis' garden is quite unlike most gardens. Beginning to develop it with comparatively little knowledge of the plants he was using, there resulted a delightful, unconventional style, which charms everyone who loves a garden with the least possible appearance of artificiality about it. To have part of the garden of this character is now very popular in England and the United States, and is fast becoming more favored in Canada. When the writer visited it in early July, there was a perfect wilderness of bloom, if one may use such an expression. Foxgloves which had, in many cases, apparently seeded themselves, were in evidence everywhere. Campanulas of many kinds, but especially the graceful *C. persicifolia*, were there by the hundred, and Canterbury bells in great profusion. Mr. Lewis had bought seed of all the best varieties and strains of pinks which he could procure from several seed houses, and mixed them together before sowing. These were in full bloom and the walks which wind about in delightful and maze-like ways were bordered by these sweet-scented and attractive flowers which almost obscured the paths in their wild profusion.

The larkspurs, which have always been a feature of Mr. Lewis' garden, he having obtained the best that could be bought, were beginning to make themselves noticed as their dazzling blue flowers opened. In contrast with these was the yellow *Coreopsis grandiflora*, one of the best hardy perennials there is, and on account of its graceful appearance it seemed particularly adapted to this garden. Many other biennials and perennials were in bloom, but one cannot refer to them here at any length. The old-fashioned sweet William seemed at home and was apparent almost everywhere in many shades of color.

The peonies were about over, but some of the long-spurred columbines, of which Mr. Lewis has some very fine ones, were still in flower. Oriental poppies and German iris had faded, but the Japanese iris were just beginning to

A Small Part of Mr. Lewis' Garden—Iris, Lupinus, Pinks, and so on in Foreground

bloom. There were many other uncommon and interesting plants in flower. Mr. Lewis is justly proud of his fine collection of azaleas, which were a perfect blaze of color during the spring. He has also been successful with rhododendrons. His collection of ericas is fine. Climbing roses were beginning to bloom in one part of the garden and gave promise of soon making a fine show.

Mr. Lewis kept a man until this year, but he found that the latter had not that fine sense of discrimination between cultivated plants and weeds which is essential to successful gardening, so now he is adopting a new method and is letting the garden look pretty much after itself, he and a lady assistant merely keeping the faded flowers cut off and pulling out the prominent weeds. There are so many beautiful flowers in this garden that weeds have little chance to grow and if there were weeds they would seem insignificant in comparison with the thousands of blooms to which the attention is compelled.

A Western Method of Growing Celery

S. Larcombe, Birtle, Manitoba

MY present method of growing celery is by far the simplest, easiest and the most successful that I have ever tired. I have abandoned raising plants in hot-beds or boxes, and sow the seed in open ground. I choose a plot of good deep soil with an even texture. This is thoroughly enriched with well-rotted manure, ploughed deeply and well cultivated in order to procure a thorough mixing of the manure with the soil; this is one of the essentials to success.

A plot with a slope either to the north or to the south is best; at the bottom of the slope I grow the celery. It is sown crossways, using about twenty-five per cent. of the plot. This in most seasons will give plenty of moisture, which is necessary for successful celery growing.

Sow in rows about six feet apart, and use a Planet Jr. drill for sowing. Sow on the flat, not in a trench. One ounce of seed will sow 600 feet. Bake or otherwise destroy sixty per cent. of the seed, then thoroughly mix destroyed seed with good seed; even in this way celery will come up plenty thickly in the row.

From May 4 to May 12, according to the season, is a good time for sowing. As celery seed is slow to come up, I put a stick at the end of each row to mark them, then if weeds appear I draw a line from stick to stick, which gives me the whereabouts of the celery and enables me to hoe and keep clean from row to row.

As soon as the plants are, say, an inch high, thin to single plants. When four inches high thin to about five inches from plant to plant, then let them grow from twelve to fourteen inches in length, when they should be watered thoroughly; hill up the next day, if plants are dry. Never hill up when plants are wet, as it will produce rust; keep hilling, say about every two weeks or as long as the celery keeps growing. By following this method I rarely have a plant run to seed, and can grow good celery from thirty to thirty-four inches in length, and with less than one-half the labor necessary for the older and earlier methods. As to varieties, White plume and Paris Golden are the best varieties for the west; both being early and of good quality.

The Vegetable Garden in Saskatchewan

Angus Mackay, Supt., Experimental Farm, Indian Head

NOTHING is more apparent to visitors, or any one travelling through Saskatchewan, than the absence of even fair vegetable gardens. Mile after mile may be passed of splendid wheat, or other grain crops, but a minute inspection about the farm buildings has to be made, to determine whether the little patch not in grain is pigweed, left to ripen, or vegetables dying a lingering death from want of care. It is true, here and there a creditable garden is seen, and it is well known that both soil and climate cannot be surpassed to produce in abundance the finest of vegetables in quality and size.

Admitting that farmers have plenty of work elsewhere than in the garden, yet this need be no excuse for neglecting one of the necessary branches by which, not only can money be saved, but the health, comfort and happiness of the family be assured. Every settler should have and can have, year after year, potatoes, cabbage, turnips, beets, parsnips and onions the year round. He can also have in their proper season, cauliflower, celery, pease, beans, tomatoes, radish, lettuce, cucumber, citron, squash, and so on; and, in addition, every garden should have rhubarb and asparagus growing in it from year to year.

PREPARATION OF LAND

To insure success each year, irrespective of the seasons, new land must be broken and backset, or old land must be fallowed. With new land, the breaking should be done before, or early in, June, and shallow, and the backsetting in August, or as soon as the sod has rotted, which usually takes six weeks after being broken. After the backsetting, any cultivation that will leave the surface fine and smooth should be done, to give the vegetable seeds, when sown the following spring, a fair chance to germinate. To prepare old land for vegetables, it should be plowed as deep as possible before the June rains are over, cultivated two or three inches deep during the growing season, and plowed four to six inches deep and harrowed before frost sets in.

Obviously, a settler, to have a garden near his house (where it should be for the sake of convenience) must prepare the land either by summer-fallowing (after it has been broken and backset and one crop taken from it), or, as the great majority of gardens are prepared, by plowing or digging in the fall or just before sowing or planting in the spring. The fallow preparation will ensure a good return every year. The latter preparation is the cause of failure throughout the province, and will continue to be so, so long as the seasons remain as they are.

The chief cause of failure is want of moisture. A second cause is lack of time to prepare the soil at the proper season. Both are overcome by fallowing the land the year before sowing or planting.

Two plots are therefore necessary: one being prepared, the other growing vegetables, year about. These plots may be large or small, according to the household, and winter storage capacity. They should be long and narrow, to permit of horse cultivation, otherwise the pigweed will continue to ripen, and the vegetables to die.

A Planet Jr. cultivator, an Iron Age, or some other of equally good make, is one of the vegetable garden requisites. For horse cultivation, all vegetables should be sown or planted in drills. For potatoes, carrots, beets, parsnips, radish, lettuce, onions, and so forth, the drills should be thirty inches apart; for cabbage, cauliflower, pease, beans, and corn, thirty-six inches apart.

CULTIVATION

It is useless trying to grow vegetables without cultivation after they are above ground. Deep cultivation is not necessary, but shallow is, and it should be repeated often, especially during the last of July and all of August. While the rains are falling in June and early July, the soil is better without being stirred, but when dry weather sets in, and the top starts to bake or crack, it should be gone over to break up the evaporation. One or two inches deep is sufficient.

Some Fungous and Bacterial Diseases of the Potato

Douglas Weir, B.S A., Biological Department, Macdonald College

(Continued from last issue)

PROF. L. R. JONES, of the Vermont Agricultural College, Burlington, has recently published the results of some interesting experiments with the fungus rot (18th report, Vermont Agricultural Experiment Station) and as the climatic conditions of Vermont and Quebec are similar, his experiments may perhaps deserve our attention.

"Little Potatoes," Rhizoctonia
Formed on stem or branches above the point of injury. (From Bulletin No. 70, Colorado Experiment Station.)

Professor Jones selected Delaware potatoes which were planted in the early part of June in a heavy, moist, clay-loam. On August 2, the surface of the soil immediately under and surrounding the potato plants was sprayed, with Bordeaux mixture (copper sulphate 6 lbs., lime 4 lbs., water 40 gals.), care being taken to prevent the mixture falling on the foliage. Spraying was repeated on August 18, and up to this time no phytophthora blight had been seen. Soon after the second spraying, however, the blight appeared and developed rapidly throughout the rows during September. The final spraying was given on August 28, so that after spraying had been concluded, one-half the plants had been treated three times and the other half remained untreated for comparison. As September was a wet, warm month, the blight developed profusely and the results of the experiment were consequently well marked. The following are the yields recorded in pounds: Soil sprayed—sound tubers, 60.2; rotten tubers, 12.5. Soil unsprayed—sound tubers, 13.5; rotten tubers, 57.9.

DISCUSSION OF RESULTS

Professor Jones writes: "The results of the two trials are in general agreement in showing, not only that the disease passes from leaf to tuber, but that the main channel at least is through the soil rather than through the stem." The professor, in concluding, informs us that the rot appeared in spite of the spraying, and in view of this fact *all* the infection cannot be explained by the sporulation from the leaves or the passing of the fungus threads through the stem; but undoubtedly some spread occurs from tuber to tuber in the soil. Professor Jones fails, however, to state whether the potato sets used in his experiments were free from blight when planted. Some of the questions that would naturally present themselves to the potato grower in this connection are:

(*a*) Were the potato sets experimented with free from phytophthora blight?

(*b*) Were they gathered at random?

(*c*) Did they actually contain the hybernating mycelium and show the characteristic markings?

If the sets were free from the fungus when planted, we would naturally attribute the consequent infection to spores, blown from diseased plants, effecting an entrance through tuber or leaf, or to spores from decayed tubers or stems already in the ground.

If the sets were gathered at random, some would undoubtedly be infected. If, however, they were known to actually contain the dormant hybernating mycelium of the phytophthora blight at the time of planting, we would have a clearer basis to work on and the results of the experiment would be more comprehensive. At all events, Professor Jones proves that, after the plant is infected the further spread of the fungus is largely by the leaf spores (conidia) falling to the ground and being carried by rains to the tubers as previously mentioned.

AN EXPERIMENT

Another experiment conducted under the direction of Professor Jones, with a view to ascertaining whether the fungus spreads from tuber to tuber in the soil, proved this to be the case. Professor Jones states that "upon digging at different times and places during the last half of the month (Sept., 1905), the fungus (phytophthora) was frequently found growing in tufts from the surface of decaying tubers; and such tufts were always richly covered with spores. Moreover, the soil conditions were favorable for their development and for further infection of tubers, as was shown by the fact that some of these

Tomatoes Grown in Alberta—See Next Page

spores were found in process of germination, *i.e.*, zoospore formation (swimming spores); moreover, the fungus threads or mycelium were found ramifying through the interstices of the soil for one-fourth to one-half of an inch from the surface of such decaying tubers and there sporulating abundantly." These facts would seem to prove conclusively that the spread of the fungus from tuber to tuber actually occurs.

GENERAL RESULTS OBTAINED

Summarizing the results obtained, both by Professors Massee and Jones, we note that there are several ways whereby this phytophthora blight is disseminated.

(1) Infection of tubers by means of spores, the latter being conveyed by rains and so forth to the tubers.

(2) Infection of tubers by spores from adjacent decaying tubers, particularly in moist soil.

(3) Infection of tubers of same plant, by mycelium extending from diseased tubers through the stem into adjacent tubers.

(4) Infection of the plant by mycelium, through planting diseased sets, in which case the fungus threads develop with the plant, sporulating on the leaves and under favorable conditions the tubers.

(5) Infection of host plant, by means of spores, blown from neighboring diseased plants, obtaining entrance directly or through the leaf stoma.

Considering these various ways of infection, it is clear that the long-practised method of spraying with Bordeaux mixture should be persistently continued so that the blight may be controlled in its preliminary stages and the fungus spores either destroyed or kept well in control. If these spores infect the tubers and the infected sets are planted the following spring, the fungus would develop with the plant, maturing even more rapidly and producing sufficient spores to infect the whole neighborhood.

THE POTATO SCAB

The term scab refers to the irregular rough areas on the tubers, and is caused by the fungus *Oospora scabies*. This fungus was widespread throughout the State of Maine during 1905-6, but is successfully controlled by treating the tubers before planting with either corrosive sublimate or formalin.* As this precaution is commonly in vogue there is no good reason why this disease should prove destructive. Quebec was comparatively free from this fungus.

THE FUNGUS WET ROT

There are several forms of wet rot, some being due to fungi, and others to bacteria. Of the parasitic fungus forms, the one which seems to have caused the most recent damage is *Rhizoctonia solani*.

This fungus is found parasitic upon the potato tubers and occasionally gives rise to a series of adventitious tubers upon the stem. It may attack the plant at or beneath the surface of the ground, and by girdling the stem, prevent the development of tubers. In severe cases a wet rot occurs, resulting in the death of the plant; but, in milder forms, it simply girdles the stem.

Dr. Nelson (Bulletin No. 71, of the Wyoming Experiment Station) informs us that this disease was particularly

Rhizoctonia

Showing the result of sowing infected seed potatoes. (From Bulletin 70, Colorado Experiment Station.)

destructive in the middle west and in the Rocky Mountain states during the past few years, and as reports of its occurrence have been received from Ontario (Huron County) and New Brunswick, it is quite possible that it may be far more widely prevalent than heretofore supposed.

Prof. F. M. Rolfe, of the Colorado Experiment Station, after exhaustive investigation, observes that there are three characteristic stages of the disease. These he designates: *The Rhizoctonia stage* where only the fungus threads are present; *The Corticium stage*, where minute spores borne upon short lateral threads appear, and *The Sclerotium stage*, where compact masses of fungus threads are observed on tubers and stem. This is the hybernating stage of the fungus over unfavorable weather conditions and it is in this form that the disease is carried over winter, the sclerotia germinating following spring. It seems probable that this disease, in affecting an entrance to, and injuring the potato tuber, prepares a condition suitable to the growth of bacteria which enters the tuber and gives rise to a bacterial wet rot. No specific instance can be given to prove, in this case, that there is any special symbiotic relationship between the fungi and bacteria; at the same time, it would appear that the tubers, ramified with fungus threads, are more susceptible to bacteria. For this additional reason, we urge that spraying be resorted to early in the season, in order to control these fungus diseases and help to minimize the conditions favorable to bacteria.

(*To be continued*)

*Two ounces corrosive sublimate dissolved in two gallons hot water; then make up to fourteen gallons. Leave seed potatoes for one and a half hours. Allow potatoes to dry before cutting or planting. Half pint of formalin to fifteen gallons water, soak potatoes two hours, then dry and cut.

Tomato Growing in Alberta

That tomatoes can be grown successfully in Alberta is evidenced by the accompanying illustration. Mr. W. P. Reeves, of Edmonton, an enthusiastic horticulturist who has been in Canada only two years, and who made a hobby of general gardening in the west of England for many years, has met with much success in this line at his new home. Mr. Reeves does not profess to be a professional gardener, but his first attempt at growing tomatoes in this country created considerable notice on the part of professional gardeners in the west. Owing to his experiencing different conditions of climate than accustomed to in the old country, his efforts have not yet reached the perfection that he hopes to attain. To THE CANADIAN HORTICULTURIST, Mr. Reeves recently wrote:

"The plants shown in the photograph were obtained from both English and Canadian seeds. They were raised in an open hotbed, but I intend starting them, in future, as they should be, in a frame. The seed should be sown in the latter part of March, and the plants transplanted to the open in May, when they should reach 8 or 9 inches in height and be in the first bloom. The custom, as far as I have seen in this country, is to allow the side-shoots and undergrowth to grow. These should be trimmed to the main stem in order to allow more nourishment to be thrown to the fruiting spikes. The plants should be well watered. The soil here is a black loam with a sandy sub-soil. The latter is not as advantageous as a heavier subsoil, as it requires more fertilizing."

Bandaging Trees.—I am a thorough believer in bandaging trees to prevent the onslaught of insects. The large number of insects I have found in the bands around my trees are all the proof I require of the advisability of bandaging. —Adolphus Pettit, Grimsby, Ont.

OUR QUESTION AND ANSWER DEPARTMENT

Readers of The Horticulturist are Invited to Submit Questions on any Phase of Horticultural Work

Budding Fruit Trees

Which month is best for budding fruit trees?—C. H., Winona, Ont.

The usual time for budding is in August or the early part of September. Budding may be done at any time during the growing season, when the bark peels easily, but in Canada, late work is necessary to prevent the buds starting into growth in the fall and subsequently being winter-killed.

Cut Worms in Gardens

I am sending a box of insects. Could you tell what they are and how I can get rid of them. They have eaten all my carrots, beets, turnips, parsnips and flower seedlings, biting the heads off when an inch high. I have tried lime, wood ashes, and Paris green without success. I have also a great many brown caterpillars in the earth round the plants. Is there anything I can do for them besides hand picking?—S. B., Ile d'Orleans, Que.

The specimens of insects submitted are the young of grasshoppers. As these do not give much trouble in gardening, it is probable that our correspondent has not sent the insects that are doing the damage. The many brown caterpillars that were to be found in the earth around the plants are the fellows who made the trouble. They are cut worms and may be dealt with by using a poisoned bait. Use bran at the rate of about ten pounds to four ounces of Paris green. Mix thoroughly when dry, then water, lightly sweetened with sugar, should be added until the whole is wet, but not sloppy. Scatter the bait along the rows. Ten pounds will do for an acre. It is probable that, by this time, the cut worms will have reached the pupa stage, when they are no longer troublesome.

Ivy Geranium

What can I put on an ivy geranium plant to kill small green spiders or lice? I do not know whether they are spiders or lice.—A.S., Aylmer, Ont.

It is probably the green aphis or green fly attacking the ivy geranium. A strong solution of tobacco water sprinkled on the plant where the insects are, or brushing them off with a small brush on to a sheet of paper and destroying them, are the best remedies. Tobacco solution can be made by pouring boiling water on tobacco stems or leaves sufficient to cover them. Cover up the solution until cold and apply without diluting with water. About a half a pint of boiling water poured on to a broken up cigar and allowed to cool, makes a good solution for green fly. Plug smoking tobacco will also make a solution, but not as good as those before mentioned.—Answered by Wm. Hunt, O.A.C., Guelph.

The English Violet

What is the best method of growing and caring for the hardy English violet?—M.A.T., Queensboro, Ont.

The English violet is best raised from seed sown in April, May, or early June, in the place they are to grow permanently if possible. Violets like a fairly moist position and partial shade during the hottest part of the day. I sowed a few seeds in 1897 on a piece of lawn partially shaded by trees for a few hours at noonday. For the last three or four years the piece of lawn—nearly a quarter of an acre in extent—was a sheet of blue violets for several weeks in early summer, the perfume from them being most delicious, scenting the air for a long distance around. The few seeds first sown had reproduced themselves and spread over the whole lawn. A too sunny or a very dry position does not suit the Engish violet.—Answered by Wm. Hunt, Ontario Agricultural College, Guelph.

Protection for Perennials

Last winter I had a large number of my perennials winter-killed. Among them were hollyhocks, shasta daisies, larkspurs, Canterbury bells, and phlox. They were protected by a few inches of leaves, kept in place by the stocks of the plants grown the previous summer. (1) Would they have done better without any protection? (2) What is the best method of protecting perennials in winter?—M.A.T., Queensboro, Ont.

1. It is questionable if the perennials mentioned would have survived the past winter without protection. The frequent alternate thawing and freezing experienced last winter and spring was very hard on border plants. Plants that were properly protected last winter came through the best with us. Possibly too much material was applied to the plants mentioned.

2. There is no better method of protecting low-growing, tender border perennials than by first placing some coarse, brushy trimmings, such as the tops of coarse growing perennials or some small pieces of brushwood or raspberry trimmings on or over the plants first. Then shake over these a few leaves or strawy manure barely sufficient to cover the brush. This collects and holds whatever snow falls, the last named being the best plant protector we have. Avoid putting a large quantity of leaves or manure close down on the plants, as this oftentimes induces an ice crust to form over the plants and smothers them by the total exclusion of air. Pine boughs alone make good protective material for border plants in winter. Answered by Wm. Hunt, Ontario Agricultural College, Guelph.

Poppies in Winter

Do perennial poppies need protection in winter?—M.A.T., Queensboro, Ont.

Perennial poppies do not require any protection in winter as a rule, except to leave their own foliage on them. In fact, it is best to leave the old foliage on all perennials until spring. It is their own natural protection.

Cutting Elm Trees

What is the best time of year to cut elm trees to keep them from sprouting again?—T. R., Chatham, Ont.

The time to hurt the sprouts most is in August, when the tree has made its growth and has not had time to recover. If cut at this time, the sprouts will be feeble and most easily killed.

Harvesting Onion Sets

Give some information on harvesting onion sets. Is it necessary for the tops to die completely before the bulbs can be taken up?—H. L., New Westminster, B.C.

Harvest onion sets when the tops begin to die down. They may be raked together in windrows or lifted out with a set of attachments that are usually furnished with a Planet Jr. or Iron Age wheel hoe. Leave on the ground two or three days to cure. Then put under shelter and spread on a dry floor. Watch them, and if necessary, move every two or three days to prevent heating. When thoroughly dry, clean them at leisure, removing the top and the few remaining roots. The adhering soil and sand may be removed by running the onions through a fanning mill. Determining the size of the bulbs to be used as sets is best accomplished by the use of a grain sieve; all bulbs that will not pass through a three-quarter inch mesh are too large for sets, and should be sold in the fall for pickling onions. To keep the sets through winter, they should be stored in a cool, dry place. Store in shallow, open crates and protect them in extremely cold weather by covering with old carpet or blankets. Remove these in moderate warm spells and ventilate the room thoroughly. Cool, dry air circulating among the bulbs dries out the moisture and prevents sprouting.

The Canadian Horticulturist

Published by The Horticultural Publishing Company, Limited

The Only Horticultural Magazine in the Dominion

Official Organ of British Columbia, Ontario, Quebec and Prince Edward Island Fruit Growers' Associations and of the Ontario Vegetable Growers' Association

H. Bronson Cowan, Managing Editor and Business Manager

A. B. Cutting, B.S.A., Horticultural Editor

W. G. Rook, Advertising Manager

Garrett Wall, Circulation Manager

1. The Canadian Horticulturist is published on the 25th day of the month preceding date of issue.

2. Subscription Price in Canada and Great Britain 50 cents a year, three years $1.20. For United States and local subscriptions in Toronto, 25c. extra a year is charged for postage. Foreign subscriptions, $1.00 a year, including postage.

3. Remittances should be made by Post Office or Money Express Order, or Registered Letter. Postage Stamps accepted for amounts less than $1.00.

4. Discontinuances—Responsible subscribers will continue to receive The Horticulturist until the publishers are notified by letter to discontinue, when all arrearages must be paid.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising Rates quoted on application. Sworn circulation 6,800. Copy received up to the 18th. Responsible representatives wanted in towns and cities.

7. Articles and Illustrations for publication will be thankfully received by the editor.

Our Protective Policy

We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason to believe that any of our advertisers are unreliable, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant we will expose them through the columns of the paper. Thus, we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefits of this Protective Policy is that you include in all your letters to advertisers the words "I saw your ad. in The Canadian Horticulturist." Complaints should be sent to us as soon as possible after reason for dissatisfaction has been found.

Communications should be addressed:

THE CANADIAN HORTICULTURIST,
506-7-8 Manning Chambers,
TORONTO, CANADA

ANOTHER CONFERENCE NEEDED

The need for the holding of another Dominion Fruit Conference next year is so pronounced, and the desire that it should be held is so great, it is to be hoped that nothing will occur to prevent one being held. It is important that these conferences should be held at regular intervals. Every year, questions of more than provincial interest have to be dealt with by the growers in each province. These matters are disposed of in different ways in the various provinces. At a Dominion conference the various lines of procedure that have been adopted are considered, and uniform action agreed upon. The sizes of packages is a case in point. When a long period is allowed to elapse between conferences, it is more difficult to secure harmony of action and time is lost by the delegates in getting acquainted with each other.

We trust that Hon. Sydney Fisher will recognize the importance of the questions that require consideration, as outlined in this issue by Sec. Hodgetts of the Ontario Fruit Growers' Association. They do not cover the field, but in themselves are of sufficient importance to warrant the holding of another conference next year. This is another of those matters in which the fruit growers of the Dominion would have greater confidence that their desires would be complied with were the fruit division of the Dominion Department of Agriculture under a commissioner responsible only to the Minister of Agriculture.

AN EASTERN STATION REQUIRED

Since our remarks in the August issue respecting the establishment of an inspection and fumigation station near the eastern border of British Columbia, for the handling of nursery stock from eastern Canada, many letters have been received from growers who emphasize the importance of such a move on the part of the Government of that province. By the present state of affairs, the British Columbia fruit grower is excluded from the benefit of the competition between nursery firms, of eastern nurseries, and when he does import eastern trees he has to pay a much higher price than he otherwise would. Such a law as that in force in British Columbia might almost be considered a direct violation of the Confederation Act. It means that the nurserymen of the province of Ontario cannot ship goods to the province of British Columbia under as favorable conditions as nurserymen in two states in a foreign country.

In the case of customs, the port of entry is always where the goods are entered, and if the goods are not examined there, they are sent through in bond to a local custom house officer. All means are taken to facilitate the importation of nursery stock from the states. In this case, however, the port of entry is at the back door of the province. It is the same as saying that goods from the province of Quebec consigned to growers in Eastern Ontario had first to go through and be examined at Windsor. Besides these arbitrary measures, eastern nurserymen are required to put up a $2,000 guarantee bond before they are allowed to sell stock in the province of British Columbia, and their salesmen are obliged also to pay a license fee of $5.

The control of these matters seems to be in the hands of the Board of Horticulture at Victoria, some of whose members appear to be determined to freeze out all eastern nursery concerns. The inspection and fumigation station, also, is under the control of men who have some singular occurrences to account for. A few seasons ago an Ontario nursery firm shipped some trees that were perfectly healthy, but had a few hail marks. The inspectors treated the hail marks with acid, for San Jose scale, and not being exactly sure what was the matter, forwarded them to the Central Experimental Farm at Ottawa. The Ottawa officials identified the injury as hail marks. Some of these inspectors, through their lack of knowledge of varieties, have been known to condemn trees of a variety which naturally is a poor grower, but which may be first-class trees of their own kind, although only third-class of another variety, more vigorous and thrifty.

An argument of the British Columbia government against the importation of eastern trees is based on the question of injurious insects and fungous diseases. They contend that eastern trees are more liable to be infested with pests than those grown in the coast states. Direct evidence proves this contention to be erroneous. An excellent illustration was furnished this spring. In fifteen cars of trees imported from the western states, about 35,000 were condemned, or 2,333 trees in each car. In two cars from Ontario, 523 were condemned, or 261 in each car. An ordinary car, twenty-six feet long, will hold about 16,000 trees. Calculated on this basis, fourteen per cent. of the United States trees imported are condemned, and only two per cent. of those from Ontario. This shows that eastern trees are the most free from pests.

It is encouraging to find that leading publications in the fruit centres of British Columbia, such as *The Inland Sentinel*, of Kamloops, are outspoken in favor of a change in the present arrangement. Once the fruit growers of British Columbia realize fully the handicap they are laboring under they will demand and secure the needed reform.

WILL VISIT THE WEST

No better evidence that The Canadian Horticulturist is a national publication in every sense of the word, is afforded than by the fact that its circulation extends from the Atlantic to the Pacific. During the past year the circulation of The Canadian Horticulturist has grown more rapidly in the outlying provinces than it has in Ontario, the province of publication.

The greatest proportionate increase has taken place in British Columbia, where the circulation of The Canadian Horticulturist has increased more during the last six months than during the previous thirty years. Our western advertising has increased in proportion. These facts are only an evidence of the great development that is taking place in the fruit and horticultural interests of the west. Desiring to keep in close touch with western horticultural interests, arrangements have been made by which a member of our staff will visit the west, including British Columbia, during September. Our representative will tour the principal fruit centres, and later will contribute a series of articles to our columns dealing with conditions in the west, and with the prospects for further development, as he finds them. It is our desire to establish The Canadian Horticulturist on broad national lines, and we hope that the results of the proposed articles will assist in bringing the fruit men from one end of Canada to the other into closer touch with each other.

Fruit growers in the western provinces should be cautious about buying from nursery firms that they do not know. There are some United States firms operating in the west who represent their stock as grown at Calgary, or elsewhere in the west as the case may be. The fact is that the stock is grown in the states, and in some cases in the south, and imported from there into Canada and distributed from a central point in the west to western growers. It is folly to expect such stock to do well. As a rule, it is too tender to withstand the rigorous climate of the west. Besides, it is delayed at the border for fumigation and inspection and, as a consequence, arrives late and much impaired in vigor. A letter from one grower in the west states: "Out of five hundred trees that I bought from a firm of this kind, only three or four are alive." It would be well for western fruit growers to purchase their trees from Canadian nurserymen, preferably those whose climatic conditions are somewhat similar to their own.

Iced Cars for Fruit

W. W. Moore, Chief, Markets Division, Ottawa

The Dominion Department of Agriculture has arranged again this year with the Grand Trunk and Canadian Pacific Railways to provide iced cars for the transportation of fruit shipped to Montreal and Quebec for export, during the months of August and September; the cost of icing to the extent of $5 a car to be assumed by the department. The agreement provides that these two railway companies will, during the period named, on proper application from shippers, supply as far as practicable, iced cars for the transportation of fruit in carloads, the minimum weight to be 24,000 pounds. This arrangement will also apply in the case of less than carload shipments when forwarded in one car by one or more consignors from any one station, provided the aggregate weight of the shipments is not less than 24,000 pounds.

The ice is to be supplied on the basis of $2.50 a ton of 2,000 pounds, and when more than $5 worth is supplied the shipper or consignee must pay the excess amount. Shippers are expected

to state, through their railway agent, the amount of ice to be utilized in the initial icing and whether cars are to be re-iced in transit. The shipper should also see that the cost of icing up to $5 is charged forward against the department. Last year, under a similar arrangement, 102 carloads of fruit, mostly early apples, were shipped in iced cars prior to the end of September and it is to be hoped that this year a much larger number of shippers will avail themselves of the privilege offered.

In this connection I wish to point out the advantages possessed by the St. Lawrence route for export shipments of early fruit. In addition to the iced cars above referred to, which, if the fruit is in proper condition when loaded, should land it at Montreal or Quebec in good condition, the shipper has the further advantage of the over-sight exercised by the cargo inspectors of this department, who are on the docks day and night for the purpose of seeing that packages of fruit are carefully handled and properly stowed in the ship. The refrigerator chambers are also inspected and thermographs are placed so as to record the temperature maintained in the chamber during the voyage Inspectors are again on hand at the ports of discharge in Great Britain to note the condition of the fruit when landed and the handling it receives. If the shipper, therefore, takes pains to ship his fruit in good condition he may rest assured that it will reach the other side in first-class shape.

Something for Dairymen

The subjects that will be dealt with in the four issues of *The Canadian Dairyman* for August will not be only timely but of great value and interest to dairymen and farmers generally. On August 7 harvesting crops and producing milk for condensed milk factories will be featured. This latter question will involve a comparison between conditions relative to and profits resulting from the production of milk for condensories, and producing milk for city consumption, creameries and cheese factories, together with a comprehensive description of the process of manufacturing condensed milk.

Power on the farm will be the main subject treated in the August 14 issue. The various forms of power will be discussed, their advantages and disadvantages, and the saving in time and labor effected through their use. On August 21, cultivation for fall crops will be taken up. In this issue all matters pertaining to the preparation for fall crops, their cultivation rotation and so forth will be dealt with.

Silo construction and points pertaining thereto will constitute the special subject for the issue of August 28. Together with these special subjects letters and articles touching on all phases of dairying will be presented.

During this month the cheese and creamery department of *The Dairyman* will be especially interesting. Efforts are under way to strengthen these departments. Each issue will contain letters from practical and competent men, dealing with seasonable subjects that will be of inestimable value to men engaged in cheese or butter making. The subscription price of *The Canadian Dairyman* for one year is one dollar. Sample copies can be had by dropping a card to the Dairyman Publishing Co., 506-7-8 Manning Chambers, Toronto, Ont

That British Columbia is becoming a great fruit growing province is evidenced by the enthusiasm and success of all persons who have bought land for that purpose. Some of the best fruit land is still available and is being offered for sale by Messrs. McDermid and McHardy of Nelson, B.C. See their advertisement on another page.

The annual convention of the American Association of Park Superintendents will be held in Toronto on Aug. 15, 16 and 17.

New Brunswick Fruit Growers' Association

IN accordance with the suggestion to that effect made at their last annual meeting, the New Brunswick Fruit Grower's Association held an illustration meeting at the orchard of the president, Mr. J. G. Gilman, of Kingsclear, on June 26. The principal speakers were Mr. G. H. Vroom, the Dominion Fruit Inspector, and that well-known entomologist, Mr. McIntosh, the Curator of the Natural History Museum of St. John.

In giving a practical demonstration of spraying, Mr. Vroom clearly described "how not to do it," and explained that some orchardists thought it necessary to "wash" their trees, a proceeding that was worse than useless. He laid great stress on the importance of having the spraying mixture properly made, and the Paris green thoroughly well incorporated with the mixture, and recommended that the latter be not added till just before commencing to spray, as being of a heavy nature, and insoluble in water, it would sink to the bottom and the benefit of it be lost, if mixed long beforehand and allowed to stand. He also emphasized the necessity of spraying just after the blossoms have fallen, as by that means the spray was able to reach the ends of the blossoms where the codling moth was in the habit of laying her eggs, and so be in readiness for the young caterpillars when they came out to feed. He recommended the bandaging of trees as one means of dealing with insect pests.

A move was subsequently made to the adjoining orchard of Mr. S. B. Hatheway, where a young orchard had recently been laid out under the direction of Mr. T. A. Peters, the deputy commissioner of agriculture, after the manner of the illustration orchards which the provincial government is setting out in various parts of the province. Mr. Peters explained the method of laying out and planting the trees, and the subsequent cultivation of the orchard, in a most appreciative manner.

SOMETHING ABOUT NATURE STUDY

At a public meeting Mr. McIntosh said he was glad to find that there was a widespread awakening, not only in this province but in the country generally, as to the value of nature study. Some people thought that nature study and natural history were the same thing, but this was not so. A naturalist was a specialist, one who made a special study of all the animate and inanimate objects of nature, with the view of learning all there was to be known about them; whilst the pursuit of nature study simply meant the obtaining a general knowledge of such objects, a little about all of them; in fact, just sufficient to know and understand how they live and move and have their being. He found it especially gratifying to see the growing desire for such nature studies among the children and the opportunities which the schools were providing for its teaching. The existence of the brown tail moth was discovered in Nova Scotia by a student of nature. So far this pest had only been found in two places in New Brunswick, and in each case it was a mature moth and not the caterpillar.

The speaker then described fully the various insect pests with which the orchardist is usually troubled, which included the bud moth, the codling moth, the aphis or green fly, the oyster-shell bark-louse (which he described as the most widespread of all the insects pests of the province), the borers (for which latter there was no perfectly satisfactory remedy), and the tent moth, which might perhaps be sometimes mistaken for the brown tail moth. The caterpillar of each was somewhat alike, but not exactly. The brown tail moth usually made its nest at the end of a branch, whereas the tent moth usually chose the spot where a branch joined the stem of a tree, or the fork between two branches. In concluding the speaker said that nature study was most valuable because of the knowledge gained of the various insect pests which damage the farmer's crops; and as such knowledge increased, so would the knowledge of farming; and better crops and more money would, as a natural consequence, result to the farmer. Mr. McIntosh's remarks were illustrated by large colored drawings of the several moths and caterpillars described, which made the subject most interesting and intelligible to his audience.

In an address by Mr. Vroom, he expressed the pleasure he had received in listening to the remarks of Mr. McIntosh, which showed that even the oldest orchardist had something to learn. He cordially agreed with the president that these meetings were the best means of disseminating knowledge it was possible to have, and as the last speaker had truly said the more knowledge the farmer had the better would be his crops. Some people thought apple growing was all profit. Whilst this was not the case by any means, there was no doubt that properly attended to there was money in it. But in their desire to care for the orchard, they must not neglect the other part of their farm, but treat the orchard as an adjunct of the farm.

To be successful, it is necessary to have good land, well drained and well cultivated, and kept in good condition. Only the kinds of trees suited to the locality should be planted; it is simply a waste of money to buy an inferior quality of stock. When planting, be careful to trim the roots and tops of the trees. If the whole of the tops were left on when transplanting, the strain on the remaining roots was too great for the tree to stand successfully. It was advisable to be somewhat sparing in the use of fertilizers, as it would only tend to make too much wood, but as soon as the tree began to bear, it would be of advantage to dress with a little potash, and this could be applied in the form of hardwood ashes.

Mr. T. A. Peters, the deputy commissioner of agriculture, in speaking of the caterpillar of the brown tail moth and its likeness to the caterpillar of the tent moth, said that though in general appearance they were somewhat alike, the brown tail caterpillar had two red spots on its back near the tail end which the tent caterpillar had not, so that any one finding these spots would know the kind of caterpillar he had to deal with.—G. Bidlake.

Messrs. Stone & Wellington, of Toronto, have had many years' experience in shipping nursery stock to the western provinces and British Columbia. That their stock has been received with favor and is doing well, is evidenced by the letters received by that firm from its many satisfied customers in the west. Mr. John Ryan, Sr., of MacLeod, Alta., wrote: "I have had a letter from the Deputy Minister of Agriculture from Edmonton, inquiring of me in regard to the growing of fruit trees in Alberta, the shelter required, etc. I told him that I had some fruit trees from Stone & Wellington, of Toronto, that could be seen in my garden at any time, and were doing well. He has sent me some forms to fill in, which I have done, and I have recommended your firm to him." A letter from Mr. Max D. Major, of Fern Point Fruit Farm, Winnipeg, Man., states: "Having purchased most of my nursery stock from you for many years past, I have pleasure in adding my testimony to the excellent quality thereof, in particular as to the trueness to name. I cheerfully recommend any prospective customers to place their orders with you. I may also add that I have always found your business dealings perfectly square and honorable." Mr. H. H. Sparling, Lorne Park, Sask., writes: "Nursery stock received in good condition. I must say the stock is very fine. The people are more than satisfied; they say it is the best stock ever shipped to Saskatchewan."

Fruit Crop Promises Fairly Well

THE yield of apples in Canada promises fairly well. The outlook in the Annapolis Valley of Nova Scotia is good. In Quebec, the crop will be below medium. Reports from various sources in Ontario are bright, although fruit is dropping badly in some districts. It is probable that the next few weeks will see a decrease in the prospects. The prospects for good prices are excellent. The crop in British Columbia promises to be, on the whole, below the average. The situation in the United States indicates that there will be little or no surplus apples for export. In many of the apple producing states the prospects are not bright. A shortage in the crop generally is looked for. The situation in Canada is mentioned in the following reports from crop correspondents of THE CANADIAN HORTICULTURIST:

ANNAPOLIS COUNTY, N.S.

Paradise.—Nonpariels are an entire failure, and this means much to western Annapolis. Gravenstein may be 25% of a full crop; Baldwin, Ben Davis and Yellow Bellfleur, 50%; Spy, King, Ribston, Blenheim, Greening and Golden Russett, 75%. The whole crop may average 50%.—B. Starratt.

KINGS COUNTY, N.S.

Port Williams.—The prospects for a good crop are favorable. Pears will be a full crop; plums, except Japanese, a full crop. Apples are of good quality and free from spot. Present prospects indicate a shipping crop fully equal to last year.—J. Donaldson.

Auburn.—Prospects for a good apple crop are bright, except with Baldwins and Gravensteins that bore heavily last year. Cranberries are showing well and if the early frosts keep off, the berries will ripen.—J. S. Bishop.

Kentville.—The weather lately has been excellent and a good apple crop is expected. Kings county never looked more promising or beautiful. Growers and farmers have lost that anxious look occasioned by the late season.—M. G. De Wolfe.

ROUVILLE COUNTY, QUE.

Abbotsford.—The apple crop will be lighter than last year. The June drop was unusually heavy. The curculio has done its share in producing these results. Apples are free from spot as yet, but the fungus is showing on the leaves. European plums, a failure; American plums, a medium crop; Flemish Beauty pear, medium; cherries, light; small fruits are a full crop and of good quality.—J. M. Fisk.

ST. JOHN'S AND IBERVILLE CO., QUE.

Henrysburg.—Prospect for plums and apples are discouraging; not half a crop in this section. Japanese plums looked fine in blossom, but there is not a single sign of a plum.—J. Spencer.

HASTINGS COUNTY, ONT.

Belleville.—The strawberry crop was only about one-half of that of last year. Cherries turned out well. Currants and gooseberries are coming in and look fine. The apples will turn out a medium crop. Pears will be a full crop.—F. S. Wallbridge.

WENTWORTH COUNTY, ONT.

Hamilton.—Present indications point to a yield below the average. Strawberries, short crop; cherries, fair; plums, fair; white peaches, light. The plums are dropping badly. Pears will be a fair crop, and grapes are expected to be heavy.—Jas. A. Stevens.

LISGAR COUNTY, MAN.

Pilot Mound.—A good crop of small fruits is expected. Crabapples promise well. Rabbits were very destructive to the fruit trees last winter.—H. M. Speechly.

MACDONALD COUNTY, MAN.

St. Charles.—Fruit crop prospects are good. The winter was a long and severe one, and the spring possibly the latest on record in Manitoba, at least since the days of modern settlement, but notwithstanding this we are having a good season for fruit, but the main reason for this is the entire absence of spring frosts. The early spring was so cold that there was no growth, but when the weather finally did turn warmer and the buds began to expand, there was no setback. Not once after growth started was there any close approach to the frost mark. At the time of writing, currants, gooseberries, raspberries, and so on, are loaded with fruit. Strawberries, which are now being picked, are hardly up to the average, owing to very warm, dry weather recently. The drouth has not injured the other fruits so far, but raspberries will suffer if it is continued much longer. Tree fruits are also a fine crop. Plums are well loaded, though in some cases "plum pocket" has injured the crop. This has been entirely prevented in our orchards by spraying with Bordeaux mixture, double strength, before the buds open. Crabapples, of which there are a few orchards in sections of Manitoba, are giving a good crop, and standard apples, where grown, are also promising.—D. W. Buchanan.

YALE AND CARIBOO COUNTY, B.C.

Spence's Bridge.—Most all fruit is a light crop caused by extreme frosts. Cherries, peaches and apples, fair.—A. Clemes.

Kamloops.—The crop this year will be about an average one, with the exception of peaches, which were badly winter-killed.—J. T. Edwards.

Fruit Trees

The Helderleigh Nurseries have long been famed for the excellence of their Fruit Trees. The stock is of undoubted quality and the trees are admirably grown for fall or spring planting.

Vines

A splendid lot of well-ripened canes in one and two year olds.

Ornamental Trees

A rich and varied collection of finely grown trees suitable for planting for effect in parks, streets or gardens.

Descriptive Catalogue and Prices Post Free on Application

Coniferous and Evergreen Shrubs

An unsurpassed collection which consists of all the best and hardiest varieties.

Deciduous Shrubs

An immense stock of all the hardy varieties. Field grown stock with masses of fibre.

Roses

A complete collection of the best varieties in dwarfs and standards.

Climbers

In great variety. All transplanted, strongly rooted, in thousands.

A Few Vacancies for Agents of Undoubted Respectability

Helderleigh Nurseries **E. D. SMITH** WINONA, ONT.

Established ¼ Century Acreage 800

Mention The Canadian Horticulturist when writing.

Ontario Vegetable Crops

THE vegetable crop in Ontario is late but is looking well, report the crop correspondents of the Ontario Vegetable Growers' Association. Frost in the south-western part of the province did some damage. The demand for green truck from Essex County exceeds the supply, and many new greenhouses soon will be built for cucumbers and other crops. All kinds of truck are looking well in the vicinity of Hamilton and Toronto.

The potato crop of the province promises to be only fair. Table roots, including turnips, parsnips, carrots and beets, are doing well and will be plentiful. The celery prospects are bright; it is probable that there will be a large crop. Cabbage will not be very plentiful. The onion crop will be quite late, but it is expected that the yield will be fair to good. Corn will be medium. Melons promise to yield an average crop.

OTTAWA DISTRICT

Ottawa.—Radishes have been a short crop; lettuce, a glut; bunch onions, in the early spring, were a glut; now there is barely enough to supply the demand. White turnips are plentiful; good peas, scarce; western cabbage, scarce. Late cabbage will be scarce next winter, but the celery crop will be one-third more than usual. Winter roots are going in nearly double of last year, except parsnips, which started poorly. Early varieties of corn will be heavy, but main and late crops will be light.—T. Mockett.

WENTWORTH COUNTY

Hamilton.—Everything in garden truck looks well. Cauliflower, beans and potatoes are among the new arrivals. New potatoes are selling at 70 cts. a basket; cauliflower, 10 cts. a head; and beans, 90 cts. per basket. Peas have been in some time and are now quoted at $1 per bu. New carrots, five cts. a bunch; beets, 20 cts. a doz. bunches. Tomatoes are not looking any too well and will be light.—J. A. Stevens.

TORONTO DISTRICT

Humber Bay.—All crops have made rapid growth and are looking well. Butter beans are now being taken to market. Prices are equal to last year.—J. W. Rush.

ESSEX COUNTY

Leamington.—The main crop of tomatoes will not be here till the last of the month; a few early ones on the market now. They are setting heavy and a large crop is looked for. Reports state that many plants have been frozen. This will tend to raise prices and make up for the losses sustained by lack of July shipments. Cabbage is being shipped now in large quantities, selling at $1.50 a half-bbl. crate. Wax beans do not promise a fair crop, selling at 75 cts. a 11-quart basket. Cucumbers are still scarce. More glass houses will have to be built to supply the demand for this vegetable, selling at $1.15 a 11-quart basket for A1 stock, and 90 cts. to $1 for lower grades. Melons are now growing well. Onions promise a fair crop. Early celery will not be in for some time. Peppers, eggplant, etc., are now growing fast and some peppers are ready for shipping. New potatoes selling at $1.50 a bushel.—E. E. Adams.

Irrigation Convention

The first irrigation convention in western Canada was held in Calgary on July 17 and 18, with a large attendance. The necessity of conserving the water supply of Alberta, Saskatchewan and British Columbia, and the appointment of a commission to inquire into the water laws of the three provinces, were subjects that were dealt with. The first resolution called for the appointment of a committee which would be a sort of a supreme court on the question. One motion dealt with the question of prohibiting irrigation companies from monopolizing the water rights, reservoir sites, small streams or other sources of water, situated in another district, to the detriment of that district, or should not be allowed to divert water from a natural watershed.

A motion was carried, urging on the Dominion and provincial governments the importance of making topographical and hydrographical surveys to determine the location and quantity of the west's water supply, and the proper methods of conserving it. Another which was carried, was one entertaining objections to associating too closely the administration of agricultural colleges with that of universities devoted to general educational work. A resolution was passed, urging on the federal government the desirability of making sufficient appropriations towards the construction or subsidizing of such irrigation projects as may prove feasible.

The Ontario Department of Agriculture sent an exhibit of fruit to the recent Winnipeg fair. It was made up of fruit that has been held in cold storage since last year and of fresh, tender fruits from the Niagara district. Mr. P. W. Hodgetts had charge of the exhibit, which was a feature of the exhibition.

The Guelph Horticultural Society recently held an interesting lawn meeting on the beautiful combined grounds of Professors Reynolds, Hutt and Dean, and Mr. Butchart. A tour was made of the grounds of each of the foregoing gentlemen, as well as others in the neighborhood. The gathering was a most enjoyable and instructive one. Other societies should do likewise.

Dominion Line

ROYAL MAIL STEAMSHIPS

"Alberta," new steamer, 14,000 tons, building
"Albany," new steamer, 14,000 tons, building

MONTREAL TO LIVERPOOL

S.S. "CANADA"	Aug. 10th
S.S. "OTTAWA"	" 17th
S.S. "DOMINION"	" 24th
S.S. "KENSINGTON" . . .	" 31st
S.S. "SOUTHWARK" . . .	Sept. 7th

Above steamers all carry passengers.

MONTREAL TO BRISTOL
(Avonmouth Dock)

S.S. "MANXMAN"	Aug. 17th
S.S. "TURCOMAN"	" 31st
S.S. "ENGLISHMAN" . . .	Sept. 14th

Favorite Steamers for all kinds of perishable cargo having fan ventilation, cold storage, and cool air chamber.

GEORGE W. TORRANCE, Freight Agent . 28 Wellington St. E., TORONTO

M. A. OVEREND, J. W. WILKINSON . . . . . Travelling Freight Agents

DOMINION LINE—PORTLAND, Maine.

Mention The Canadian Horticulturist when writing.

Kootenay Fruit Lands

HIGHEST GRADE

FOR SALE

Both Retail and Wholesale

J. LAING STOCKS

Box 23. Nelson, B.C.

Mention The Canadian Horticulturist when writing.

NOTES FROM THE PROVINCES

By our Regular Correspondents and Others

Quebec

Auguste Dupuis, Director, Fruit Stations

I have received the following note from Messrs. Stone & Wellington: "We were pleased to see your article in the June number of THE CANADIAN HORTICULTURIST, and we agree with you in regard to the damage to the fruit trade that is done by irresponsible nursery concerns in selling such tender varieties as King, Baldwin, and so on, in the northern districts of Quebec. We have always taken particular pains with our agents in the province of Quebec, allowing them to sell only such varieties of stock as have been proved iron-clad and hardy, and which will stand the severe winters. We well know that a number of people in Quebec have been humbugged and have lost considerable money by planting tender kinds. The first thing we do in starting a new agent in your province is to instruct him on the hardy varieties, We, however, want to be up-to-date, and if you can supply us with any bulletins or reports from your experimental stations we will be pleased to receive them."

If all nurserymen would follow principle outlined in the foregoing letter, the fruit industry in the districts of Quebec would prosper and the demands for stock would increase to the mutual benefit of nurserymen and fruit growers.

The losses have been so great in the eastern part of Quebec by the planting of tender varieties in worn out and unprepared soil that the Quebec Pomological Society has suggested to the government the licensing of tree agents, who would have to pass an examination to prove their competency in fruit culture and in guiding the planters in the right direction, instead of the wrong system of encouraging them to plant in poor soil trees raised in rich nursery soil. Without manuring, without protection either natural or artificial, extensive plantations made in Montmagny and other counties have come to nothing. The general verdict of farmers on these failures is that trees sold now are not so strong as those planted by their ancestors (in virgin soil). It is to be hoped that the nursery concerns advertising in THE CANADIAN HORTICULTURIST will employ in our cold districts only honest agents to whom plate books will be given illustrating *only* good and recognized hardy varieties of fruits.

Saskatchewan Climate

G. T. Barley, Prince Albert

After a careful comparison of the weather conditions and climate in Ontario, with various districts in the west, I have come to the conclusion that that portion of land that lies between the two Saskatchewan rivers is the most suitable for fruit and tree planting for the following reasons: The soil is a rich, black loam; the land is rolling and well timbered with native trees; there is an abundance of rain during the growing season; high winds, so prevalent in other quarters, are absent.

I have spent over 20 years in this country and have observed climatic and other conditions carefully. We hope to grow many kinds and varieties of fruits, ornamental trees and shrubs that it is now thought will not do well.

British Columbia

C. P. Metcalfe, Hammond

Strawberries are about over, and raspberries will soon be. Prospects for other kinds of fruit are about the same as last month. Fruit trees as the season advances show considerable injure from last winter's frost, and entail extra cary in the way of cultivation and thinning if they are to mature a fair crop of fruit without taxing the trees too severely.

In a year of this kind, thinning is of especial value in that it lessens the drain on the vitality of the tree, and encourages the formation of fruit buds for another season. No exact rule can be laid down, as methods of thinning vary in the different varieties of fruit and in different trees in the same variety. Some varieties bear every year and have to be thinned very severely if the crop of fruit buds for another season and the general growth of the trees are not to be checked. Others again which bear only biennially may be allowed to carry quite a load, as they will have the off year to recuperate.

There are many other things to be taken into consideration in thinning apples, as the size, color, flavor, and keeping qualities are all materially affected. Another important factor is the increase in the percentage of No. 1 fruit and the decrease in No. 2 and culls.

Prince Edward Island

Fruit meetings were held in Prince Edward Island in July. The Island is handicapped for manufactures, and many branches of farming. Not so with apple growing, which can be followed

THE NEW WAY

THE OLD WAY

THE WAGGONER EXTENSION LADDER

is what you want for pruning and picking; also for general use about the place. It is reinforced with steel wire and is the lightest, strongest and handiest ladder made. Write for free illustrated circulars and price list.

The Waggoner Ladder Co. Limited

LONDON, ONTARIO

Mention The Canadian Horticulturist when writing

APPLES WANTED FOR EXPORT

REPRESENTING

James Adam, Son & Co. Liverpool

James Lind ay & Son, Limited Glasgow

Nothard & Lowe, London

Manchester Fruit Brokers, Limited Manchester

THESE are the largest and most reliable fruit merchants in Great Britain. Your interest demands the securing of our prices and terms of sale before selling your crop. Write to-day. Market cables received every sale day.

TELEPHONE MAIN 5131

A. E. W. PETERSON

APPLE BROKER

27 CHURCH STREET - TORONTO, CANADA

Mention The Canadian Horticulturist when writing

on equal terms with the rest of the Dominion, if the same energy and intelligence are used. It wss the object of this series of meetings to discuss not only cooperation in selling but all other questions in apple growing that may be of special interest to the audience. The program gave the fullest opportunity for asking questions on all practical subjects. Any intelligent farmer in Prince Edward Island can take an acre of suitable land worth, say, $50 an acre, and by planting it to apples at an outlay of less than $50 more, can increase its value to $400 an acre.

Every farmer who plants a ten-acre orchard on his farm will have work and revenue enough to justify one more of his boys settling on the old homestead rather than enriching some other province with his brain and muscle.

New Brunswick

J. G. Gilman, Fredericton

The morning of July 9 found us making our first picking of Dunlap, Crescent and other early berries. The show of green fruit was good, and gave promise of a full crop. The afternoon of same day found the berry crop damaged beyond repair, by one of the worst hail storms that ever visited this locality, beating the green fruit from the stems and bruising the greater part that was left on. Later pickings showed many bruised berries.

The apple crop also is damaged to the extent of 75% of bruised fruit. Fortunately the area covered by the storm was not large, and good average crops of both small fruits and apples are being expected. The extremely late spring made many crops late in starting, but the favorable conditions for rapid growth that have prevailed for the last eight weeks have brought the crops on so fast that they are but little behind the average year. The farmer's difficulty is to keep up with the cultivator and hoe.

Nova Scotia

No event that has transpired in Nova Scotia has better shown the importance of having a well-organized department of agriculture than the recent invasion of the brown tail moth. In Massachusetts a million and a half of public funds have been spent in an endeavor to repress this pest. It is estimated that upwards of a million of private money has been devoted to the same cause. These figures are sufficient to indicate the seriousness of the invasion of such a pest in Nova Scotia. However, through the efforts of the provincial department of agriculture, the pest has been located and its bounds defined before the people whose trees were being affected were aware of its presence.

In Massachusetts it was different, for there nothing was done by the commonwealth until the caterpillars had done much devastation. Another year without any public effort would have meant that this serious pest would have gained an almost impregnable foothold in Nova Scotia. However, by prompt and strenuous effort upwards of 3,000 nests have been destroyed. As far as can be judged this constitutes the largest proportion of nests actually existing.

Since the period for destruction has passed, the department has been operating two spraying outfits in those sections of Digby County where wild apple trees exist in large numbers and where little, if any, private spraying is done. These spraying outfits are in charge of Mr. G. H. Vroom, of Middleton, who reports that they are working very satisfactorily and assisting in the further destruction of the caterpillars.

Whether the brown tail moth can be absolutely stamped out in Nova Scotia it is difficult to say. However, it would appear as if, by this prompt effort, it would, at least, be prevented from ever gaining the strong foothold that it has now in the New England States.

Montreal

E. H. Wartman, Dominion Fruit Inspector

Montreal certainly has a live lot of fruit men, up-to-date in every respect. Think of five cars, California fruit, on July 18 sold by the Montreal Fruit Auction Co. in two hours, in lots of from one to 20 crates and boxes comprising pears, plums, peaches and apricots, aggregating a sale of $9,000. These five cars commenced to unload after 12 midnight, and by 9 a.m. were ready for auctioneer. Buyers with catalogs of same in their hands were ready for business. There was a very heavy bill attached to each of these cars, about $700 to cover each car for icing, duty and express charges. The fruit put up by the several California fruit firms, viz., Earl Fruit Co., Producers' Fruit Co., and Pioneer Fruit Co., is a credit to the state of California.

Strawberries coming forward by hundreds of crates toward the end of July in good order was very unusual so late in the season. High prices were a characteristic of season, the general price being 9 to 12 cents for a four-fifths quart box. A few fine raspberries came in to-day and sold at 18 to 20 cents a box.

New Brunswick has just commenced to ship strawberries. One peculiarity in their package is their octagon-shape boxes, with the bottom nailed three-quarters of an inch up the box. By some it is thought to be a fraud, but such is not the case. One box in crate rests on the other. No lattice sections are between, the air space being sufficient to protect the fruit. These boxes contain four-fifths of a quart, therefore are the size required by law. As the fruit arrives here in perfect condition, a distance of 500 miles, what more could we desire?

Montreal Island has been favored with frequent showers and moderate heat. Vegetables and fruits are all looking well. Duchess apples to-day can be found measuring one inch across the core; this is good for so late a start.

PACKERS' "SAFETY"

Fruit Wrapper

PAPER

Recommended by Government Inspectors
Used with perfect results by largest growers

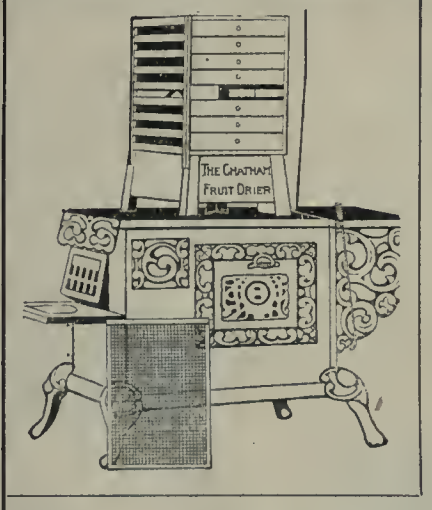
TAKE NO CHANCES WITH
UNTRIED PAPERS

Large Stock, Following Sizes, Always on Hand:

8x 9....	10c	per ream	(480 sheets)
10x10 ...	14c	"	"
20x30....	81c	"	"
24x36....	$1.15	"	"

Buntin, Gillies & Co.
LIMITED
HAMILTON -- -- CANADA

Mention The Canadian Horticulturist



LET THE HEAT FROM THE TOP OF YOUR STOVE MAKE YOU MONEY

Here is a Chance to get Something for Nothing

The heat that comes from the top of your stove when it's in use in baking and cooking can be utilized to perfectly dry and evaporate a lot of nice Fruit for winter use, providing you own a

Chatham Fruit Drier

SOLD ON APPROVAL

This little Fruit Drier is the greatest invention ever used for the drying and evaporating of fruit. It sits right on top of your stove, and the heat goes up and around the fruit and soon dries it thoroughly, and in a much more sanitary way than by hanging it up on strings in the kitchen, or out of doors in the sun, where it is exposed to dust and flies. The CHATHAM FRUIT DRIER holds twelve square feet of fruit when the eight trays are full, and after the fruit is placed in it and put on the stove to evaporate it requires no further attention.

30 DAYS' APPROVAL TEST

After you use it thirty days, if you don't find that it does all we say it will do, we'll take it back and refund every penny of your money, and the test shan't cost you a penny. That's fair, isn't it? We have letters from women all over Canada telling us of the success they have had with the Chatham Fruit Drier, and you'll say the same thing after you've once used it. Write to-day for price, printed matter and circulars, FREE. You can't afford to be without this handy, economical little money-maker. Address

THE MANSON CAMPBELL CO., LIMITED, CHATHAM, ONT.

Mention The Canadian Horticulturist when writing

LADDERS FOR EVERY USE

FRUIT GROWERS in every part of Canada are using our celebrated double truss high carbon steel wire extension ladders.

LIGHTER STRONGER CHEAPER than any other ladder made.

The most perfect ladder in existence. Each side rail has a heavy, high carbon steel wire stretched along the inside, securely fastened at the end, forming a truss and prevents side swaying. Send for one of our new illustrated catalogues, giving sizes and prices.

THE
BERLIN WOODENWARE COMPANY
BERLIN - ONTARIO

Branches in all parts of Canada

Desired—A Conference Next Winter

FRUIT growers in all parts of Canada are wondering what arrangements, if any, are being made by the Dominion Department of Agriculture for the holding of another Dominion fruit conference next year. At the conference held in Ottawa last year a general desire was expressed by the delegates that a similar conference should be held every two or, at the most, every three years. A resolution to this effect was introduced by the resolutions committee and was spoken to by Rev. Father Burke. While Hon. Sydney Fisher did not promise to arrange for the holding of another conference within two years, he assured the delegates that one would be called within a reasonable time.

A number of important matters that were on the program for consideration at the last conference were not dealt with, owing to lack of time. But little or nothing has been done to carry out the expressed wishes of the last conference in regard to several other matters that were dealt with. Several new questions, deserving consideration, have arisen during the past year These facts being generally recognized, the feeling has been growng for some time that it would be well for the Dominion Department of Agriculture to arrange for the holding of another conference next year. Such a gathering would make it possible for the growers to complete all business left over from the last conference and to deal with the new questions that have arisen since. It is felt that the conference is needed.

British Columbia Fruit Lands

FOR SALE

Two ten acre Fruit Ranches, near Vernon, B.C. Price $1,550.

One 97 acre Ranch, good soil, a snap, only $2,500. 4½ miles from Vernon, good water on the ranch, also good pasture and timber.

A splendid Market Garden for sale. 18 acres of land and 110 feet of glass. Doing good trade, a chance for a gardener that wants to make money for himself. Near Revelstoke, B.C. Only $2,000 cash.

F. V. STAGG, Real Estate Agent
P. O. Box 118. Revelstoke, B. C.

ALL WANT ONE

Leading fruit growers in all the provinces of Canada are anxious to have another Dominion Conference held in 1908. In spite of the way the work was rushed through, the success and results of the conference held in March, 1906, have been so pronounced it has led to the belief that they warrant the holding of similar gatherings at regular intervals. The regular recurrence of these conferences will make possible more rapid improvements in matters relating to the fruit interests of the Dominion as a whole than has been the case in the past. The fruit industry is developing rapidly, and with its progress, questions of national importance require more particular attention. The following letters received from various fruit growers' associations contain many valuable suggestions:

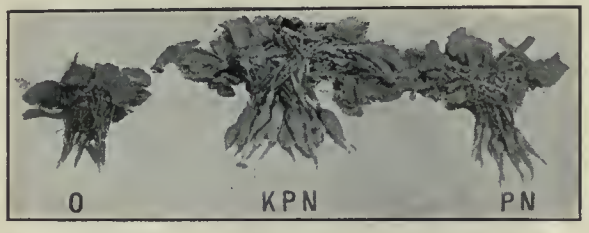
BRITISH COLUMBIA

"The British Columbia Fruit Growers' Association is heartily in favor of a Dominion Conference next winter," wrote Mr. W. J. Brandrith, the secretary. "There are several things that should be set straight. The two principal ones are: 1. Why was not the apple box made legal for home trade, as we expected it to be, after the discussion at last conference? and 2. We are opposed to the Staple Commodities Act re Small Fruit Packages. We have been

POTASH
for FIELD, GARDEN, ORCHARD

POTASH promotes maturity and counteracts the effect of an excess of nitrogen in the soil produced by a too heavy application of farmyard manure or from other causes. POTASH is a direct plant food and is indispensable

Fertilizer Experiment on Radishes by Otto Herold, Waterloo, Ont., 1906



Treatment: Unfertilized — With Potash — Without Potash
Result: Non-saleable — $200.00 — $20.00 per acre realized

POTASH in the highly concentrated forms of Muriate of Potash and Sulphate of Potash is obtainable of all leading Fertilizer Dealers.
Pamphlets treating of the cultivation and fertilization of all farm crops will be sent free on application.

The Dominion Agricultural Offices
of the Potash Syndicate
1102, 1105 TEMPLE BUILDING, TORONTO

Mention The Canadian Horticulturist when writing

Feed Your Land
WITH GOOD MANURE AND GET
GOOD RETURNS

MARCHMENT'S
SURE GROWTH COMPOST
—IS THE BEST—

Supplied to the Largest Nurserymen and Fruit Growers in Ontario

S. W. MARCHMENT
133 VICTORIA ST., TORONTO

Telephones Main 2841 Residence Park 951

Mention The Canadian Horticulturist when writing

15 years experimenting with crates in which to successfully carry our berries to Manitoba. The consumers knew what they were getting—24 pounds of fruit. Now, two-fifths of a quart or four-fifths of a quart does not mean anything when the berries get as far as Regina, and when they get to Winnipeg they mean less."

THE ONTARIO ASSOCIATION

"I am fully in sympathy with the matter of holding another Dominion Conference of fruit growers in 1908," wrote Secretary Hodgetts of the Ontario Fruit Growers' Association. "As secretary of the Ontario association, I have been for the past five years in touch with a large number of the growers of this province, and know fairly well the questions in connection with the industry in Ontario which are causing the most trouble. The work that was undertaken by the conference in 1906 was enormous, and the results of corresponding value. I consider it as fully sufficient to justify the Minister of Agriculture for the Dominion in again calling the delegates from the various provinces together.

"In reference to topics, there should be some time devoted to finishing the work of the last conference. Further information should then be available as to "Fruit Statistics," the Federal and Ontario Departments having combined this year to obtain more extended and accurate reports. As the amendments to the Fruit Marks Act will have had two seasons' experiment, further discussion on this subject will be inevitable. Transportation problems seem to be getting more acute every year, despite enormous expenditures by the railway companies, and I think that the Board of Railway Commissioners might well devote an afternoon to hearing the opinion of the fruit growers on this important topic. Owing to the placing of the express rates under the Commission subsequent to the last conference, this important branch of transportation work was only touched upon. A number of other topics need further discussion.

"One new subject that I would like to see discussed would be that of nomenclature of fruits. At present our nursery catalogs, prize lists, and so on, seem to use the variety name in most cases which first comes to mind, with the result that considerable confusion results. Here at the Department we have been endeavoring to follow the rules of the American Pomological Society, but some of their names for well-known varieties are out of the question in Ontario, as usage has fixed such names as the Duchess and Greening apples, the Duchess pear, and so forth. A committee of each association might well be appointed in advance of the conference to look into this matter.

"I would further suggest that a session be devoted to cold and cool storage for fruits. Considerable information along these lines should now be in possession of the Federal Department of Agriculture. More attention from the grower and shipper is now required as to the proper temperatures in which to store fruits from the time it is picked until it reaches

EMPRESS PANSIES, the finest strain in existence. Sow in July and August. Packets of Seed post free, 50c., 75c. and $1.00.

DAFFODILS in 5, 10 or 15 different varieties (East Coast grown bulbs are the best). Delivered free by parcel post. 250 for $3.00, 500 for $5.50, 1,000 for $10.00.

Bulb Catalogue Post Free

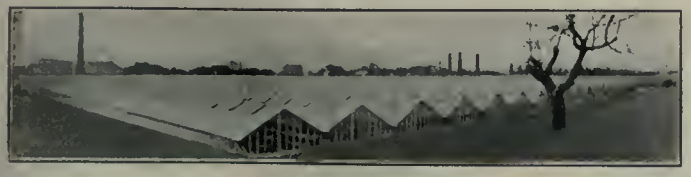
WALSHAW & SON - The Nurseries
SCARBOROUGH, ENGLAND
Established two centuries

LARGE QUANTITY OF
BASSWOOD AND HARDWOOD HEADING
— FOR SALE —

Good sound stock, well manufactured, mostly three pieces in heads. Dry kiln in connection with plant. Can ship on short notice. Would like to establish connection with Cooperative Societies.

JOHN McDONALD
SAWMILLER
WALTON, ONTARIO
Mention The Horticulturist when writing

SPECIAL GLASS
FOR GREENHOUSES



Conservatories of The Dale Estate, Brampton, Ont.
Glass supplied by our Toronto Branch

GOOD QUALITY, FLAT, EVEN THICKNESS AND WELL CUT

PILKINGTON BROS.
Limited
Toronto, Montreal, Winnipeg, Vancouver
Mention The Canadian Horticulturist when writing.

ABUNDANT CROPS OF HIGH QUALITY FOLLOW THE USE OF

Tobique Plaster
OR GYPSUM

ALL KINDS OF LAND REQUIRE THIS FERTILIZER

Fruit Growers—Flower Growers and Vegetable Growers
SHOULD USE TOBIQUE PLASTER

SPREAD IT ON YOUR LAWN OR GARDEN
THOUSANDS OF TESTIMONIALS FROM USERS

R. C. Mosher, Manager, Plaster Rock, N.B.

WESTERN AGENT
THE F. G. TERRY CO., 31-41 GEORGE ST.
TORONTO, ONTARIO
Mention The Canadian Horticulturist when writing

Canadian National Exhibition

1907—TORONTO, ONT.—1907

August 26 to September 9

Four Hundred Thousand Dollars in New Buildings

Six Thousand in Premiums for Cattle and Dairy Products

New Grand Stand — largest in America

New Agricultural Hall — best equipped on Continent

New Railway Building

Extensive Cold Storage System

Entries close Saturday, August 3

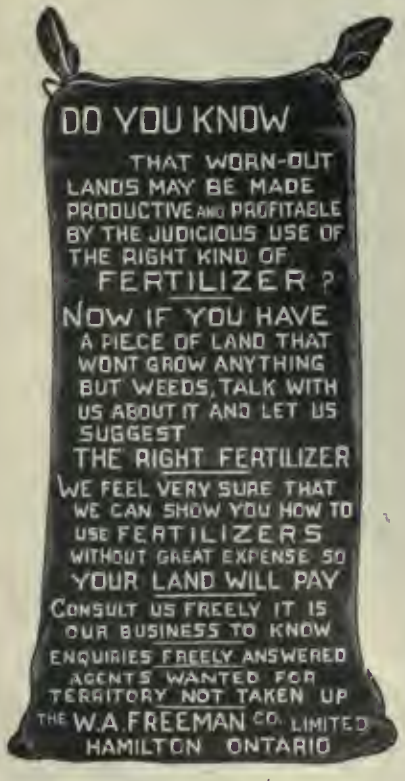
For price lists, entry forms and any information required, address

J. O. Orr - - Manager and Secretary
City Hall, Toronto

W. K. George, President

Mention The Horticulturist when writing

Profit Producing Fertilizers



the consumer, and a thorough discussion on this subject would do much to bring the matter to the attention of the fruit growers.

"The executive committees of each provincial association could each appoint one member to receive local suggestions as to topics, resolutions, and so on, and to correspond with the members appointed from other associations with a view to preparing a comprehensive program in advance. Then these topics could, where necessary, be thoroughly discussed by each provincial association at their annual meeting in advance. Such a plan would make the conference more truly national in its character."

H. H. & S. BUDGETT & CO., LIMITED
BRISTOL, ENGLAND

Importers of Canadian Apples. Liberal allowances made to reputable shippers on bills of lading at Montreal. Write at once for further particulars regarding our method of disposing, and payment for first-class Canadian fruit.

NOVA SCOTIA

A letter from Mr. S. C. Parker, secretary of the Nova Scotia Fruit Growers' Association, states: "I would gladly join in any way to promote an early meeting of the conference. In any event, each association should be getting in readiness for such a gathering, and be fully prepared for it when it comes."

We have just seen a sample copy of your paper, and are so pleased with it that we are sending subscription for one year.—Fred. R. V. Johnson, Mara, B.C.

Every fruit grower whose means and limited acreage do not warrant the cost of a mechanical evaporating plant, should have one or more kitchen evaporators. Much fruit goes to waste every year on account of the lack of a proper means of handling and disposing of it. This can be overcome by purchasing a fruit drier from the Manson Campbell Co. of Chatham, whose advertisement appears in this issue.

ECONOMICAL AND RELIABLE

Hot-House Heating Systems

"Sovereign" Hot Water Boilers and Steam Heaters may be relied upon to provide a continuous even temperature for heating hot-houses and conservatories.

The system works just as satisfactorily with water supplied from a tank on the premises as it does when connected with a city or town water service.

Catalogue and full particulars sent to any address.

Taylor-Forbes Company, Limited

Head Office and Works—GUELPH, ONT.

SELLING AGENTS

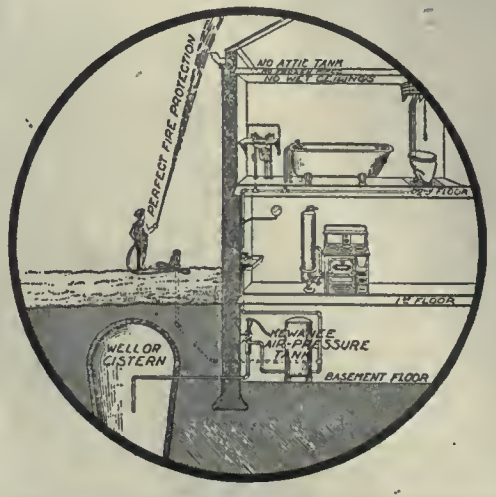
The Vulcan Iron Works, Winnipeg, Man.
Boyd, Burns & Company, Vancouver, B.C.
H. G. Rogers, St. John, N.B.

MONTREAL OFFICE, 122 Craig St. West
TORONTO OFFICE, 1088 King Street West

Mention The Canadian Horticulturist when writing

KEWANEE WATER SYSTEMS

(AIR PRESSURE)



Are now in use in over 7,000 Private Homes, Stock-farms, Greenhouses, Ranches, Hospitals, Charity Homes, Apartment Houses, Factories, Government Buildings, etc. Built in sizes to suit the smallest family or the largest town. Throw streams 100 feet high. Everything out of sight and reach of frost. No failures. They are NOT expensive luxuries but ARE ECONOMICAL NECESSITIES, and give to the country or village resident the FULL SERVICE AND FIRE PROTECTION afforded in the cities. No elevated tank nuisances. Write for information to

W. H. BRAND

Canadian Representative and Salesman

Jordan Station, Ontario

Mention The Horticulturist when writing

The British Market for Canadian Fruit

From a Britisher's Standpoint

"WHAT a wonderfully productive country Canada is!" We so often hear this remark in London, that the significance of its meaning is often lost sight of. Its power of production is almost boundless, this being especially so in reference to dairy and fruit produce. On the other hand, the mother country is unique in its power of consumption, which is prodigious, making it the most profitable market in the world for every kind of produce.

In Great Britain we have a combined population of over 43,000,000, which have to be fed every day, and when one realizes that over 6,000,000 (or one-seventh) of this total live within the fifteen-mile radius which forms Greater London, the possibilities of the British market, and London especially, can be readily seen. I heard Lord Rosebery, when speaking of free imports of foodstuffs into Britain, say: "How can any man, who, considering our insular position and the millions of mouths to feed three times every day, ever dare to even suggest any tax on our food? Our appetite is insatiable, and our doors must be kept wide open to receive all that is sent in."

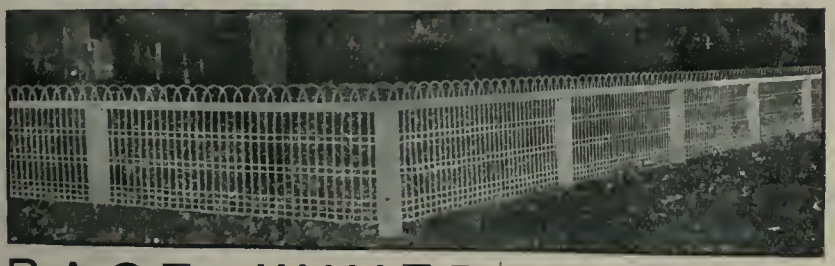
Here then are two big facts; the almost illimitable productive power of Canada and the "insatiable appetite" and consuming power of the homeland. What a combination is here shown, forming the basis for a vast and ever-increasing mutual trade, as evidenced by the marvellous figures given to us by our Board of Trade, as month by month they keep showing increase upon increase, and at a wonderful ratio! It is impossible to expect that the present increase will permanently continue. But even if we were on the falling instead of on the advancing wave, a sufficient miracle remains in the astonishing economic position of England—little favored by nature, with a huge population cooped up in a tiny island—to make us assured that one of the most vital factors in this miracle is the advantage we enjoy of cheap food and cheap raw materials, and in unfettered, unhampered trade.

With these facts before us, London should become more and more the market for Canadian (and especially Ontario-grown) fruit, and to this market I wish to draw the attention especially of the Ontario growers, who, unlike our Nova Scotian cousins, have *not* exploited it as they might; and it is with this in mind that I would like to offer a few practical suggestions, as they appear to one who has studied this market for a considerable period and from the point of view of both buyer and seller.

ONTARIO FRUIT SECOND TO NONE

Your *fruit is second to none*, and given the facilities for cooperation in the best methods of growing, picking, grading, storing, packing and shipping, the fruit should arrive here in the pink of condition, which means best prices and good returns. These points just mentioned I will deal with in their order in a further article in the special apple number of THE CANADIAN HORTICULTURIST for next month, and will content myself, now, with only a few general remarks on the export trade as it appears to us on this side.

On the London market we can sell *best quality goods* at tip-top prices, and it should be the combined aim of the grower, picker, grader, storer, packer and shipper, each one in his turn as he handles the fruit, to arrive at that high standard



PAGE WHITE FENCES

The Acme style you see above costs only from 16 cents a linear foot. Handsome and durable for lawns, parks, cemeteries, etc. Any height or length. Gates to match from $2.25. Write for catalog, or inspect this ideal fence. From us direct or any Page dealer.

The PAGE Wire Fence Co., Limited Walkerville Toronto Montreal St. John Winnipeg 212

Paper for Fruit Wrappers

¶ Are you doing an export fruit business? We supply paper—thin-cheap. Good for fruit wrappers. Tell us your wants and let us send you samples free.

TRADE MARK

WHITE TISSUE
MANILLA TISSUE
SPECIALTIES

CANADA PAPER CO. LIMITED
TORONTO

Mention The Canadian Horticulturist when writing

The Canadian Produce Sales and Agency Co.

LONDON, ENG., MAKES

4 SPECIAL POINTS

for Apple Exporters

"UP-TO-DATE" Shipping Terms.

POINT 1 Selling Commission is 5% Only and Inclusive

POINT 2 Cash Advance of $1.00 per barrel against documents.

POINT 3 Our Guarantee that $1.25 Shall Cover

ALL FREIGHT EXPENSES

From your station right into London market, including all cartage, dock and market charges.

POINT 4 OUR SPECIAL STORAGE ARRANGEMENTS at Cheap Rates right on the London docks when required or necessary to wait for the market.

NOTE POINT NO. 3

AND WRITE FOR

full particulars of our up-to-date fixed

Consignment Terms

to the Canadian Produce Sales and Agency Co.

Arthur C. Deayton,
Manager

Bank Chambers, Teddington, London.

Any and Every Kind of Agency Work Undertaken.

MAKE GOOD USE OF US

The Simplicity of the Beck-Iden Acetylene Lamp

The light from a Beck-Iden Lamp is obtained from acetylene—the best illuminant in the world to-day.

The Carbide, from which acetylene is made, reaches you in tin cans, which can be kept anywhere, with perfect safety.

The top part of the lamp is unfastened from the base, turned upside down, and filled with carbide.

The base is then filled with water, the lamp is put together again and is ready for use.

Acetylene is formed by the carbide dropping into the water.

The lamp works automatically and can only generate the necessary amount of gas, at any one time.

At each filling, the Beck-Iden Acetylene Lamp burns for about nine or ten hours.

Makes an ideal light for country homes.

For full descriptions, cost of light per hour, etc., write for booklet.

Beck-Iden Acetylene Lamp Co.,
86 Notre Dame St. West, Montreal. 13

of perfection at his work, which will ensure the fruit being landed here in such a state, that it will fetch the top price of the market.

This brings me to your method of selling. Why not net the full value of your apples, by shipping them to some reliable firms (and there are still some to be found in London), to sell for you, instead of selling at a low price on the spot? Surely is is worth waiting another month or so for your cash, to net perhaps another shilling or more a barrel on your output, as would be the case generally, on a proper consignment basis, that is, fixed terms for charges.

My point is, that on this basis of sale, your apples *bring home their value*, and, seeing that the better produce you ship, the better price you get, surely it is to your advantage to obtain the full market value for it, rather than let any buyers snap it up at their own price, and very often snap up with it a profit which is yours, and should come to you, if your fruit was sold at its proper market value here.

I know personally of a fine parcel of 1,000 barrels of russets which one of the Ontario co-operative associations sold on the spot at $3.00 f.o.b., last season—no doubt a very good price—but they realized from $5.00 to $6.00 when they got here; they would have netted nearly another $4,000 had they sold them on a commission basis, an extra profit not to be sneezed at. Of course, at times it cuts the other way, but not so often now in these days of improved transit. With better packing and grading, good prices are the rule, and an out-of-condition lot is the exception.

Again there are firms who will advance $1.00 a barrel against shipping documents, and who also will give a *written guarantee* that the inclusive charges (except commission) from your railway station right into the London market, covering freight, tolls, dock charges, cartage, and so forth, shall not exceed $1.25 *a barrel*, a very reasonable proposition, as you then know exactly what your expenses will be and can make your calculations accordingly: these arrangements of *fixed charges* should bring the consignment business again into favor.

Another argument often brought against consigning, is, that the shipper often meets a market heavily stocked, and down go prices and returns, owing to the large quantity of apples arriving at the time. To meet this, the writer has seen the superintendent of the Surrey Commercial Docks, London, and finds that if sufficient support were given them they would gladly place one of their fine warehouses at the disposal of Canadian shippers, where apples could be stored at a very nominal rent of, say, about one penny a barrel, per week, and in a *fixed temperature* of 34 degrees, best suited to such produce.

We wonder sometimes why your many apple growers' associations do not combine in this matter, and forward their consignments of apples to their own supported or paid agent here, who would store them if necessary, and sell as the market was fit to take them and when prices were good, and also sell direct to large buyers at the docks *en bloc*; and who could look after their interests generally on this side.

I commend these methods to the serious consideration of your associations and growers for the coming season, and should further information be sought by any so interested, the editor of THE CANADIAN HORTICULTURIST will be pleased to put them into correspondence with those who would cooperate with them on this side, in any such scheme, and also with those firms here who are open to do business on the fixed charges principle with advances against shipments, and so secure full market value for their goods.

There is immense scope yet for a very great extension of trade in Ontario-grown fruit, and having just opened up the subject in the first article, I shall have a further talk next month on details of the fruit export business, showing the possibilities there are of making even better profits for the growers on their shipments of fruit to this country.

THE PHOTO-ENGRAVERS LIMITED.

DESIGNERS ILLUSTRATORS ENGRAVERS AND ETCHERS

10 JOHNSTON LANE

TORONTO PHONE MAIN 5251 ONTARIO

Mention The Canadian Horticulturist when writing

Underwood

The increase in Underwood sales this year has been over 100 machines a month. For any other typewriter this increase would be considered exceedingly satisfactory as total sales.

The Underwood Billing Typewriter has been sized up by business men as the greatest economizer and systematizer of office work ever produced. A large financial institution recently placed an order for forty, and in a few days duplicated the order. Let us send you the book about the Biller.

United Typewriter Co. Limited

7 ADELAIDE STREET EAST, TORONTO

Mention The Canadian Horticulturist when writing.

Onion Blight or Mildew

W. T. Macoun, Horticulturist, Experimental Farm, Ottawa

IN some parts of Canada onions have suffered during the past few years from the attacks of Onion Blight, *Peronospora Schleideniana*, which in some cases has caused serious loss to vegetable growers. As this disease can be prevented by thorough spraying with Bordeaux mixture, all vegetable growers should be aware of the fact. The onion blight is a parasitic fungus which spreads by means of spores in summer and is carried over winter by what are known as oospores. These oospores are formed within the leaves, and when these are removed in the field or fall off they remain over winter there and re-infect the young plants in the spring or early summer. It will be readily seen that it is important where the disease is troublesome to remove all foliage from the field in the autumn and destroy it. Where possible, the onion should not be grown two years in succession in the same field, and if possible two years should elapse as these oospores retain life for two years. When the disease infects the onion plants by means of the oospores in early summer the mycelium grows through the plants, feeding on the juices, and the first outward indication of the disease is a violent discoloration of the foliage. In a short time the leaves turn yellowish and fall off and give the plant the appearance of being scalded. When the disease is quite apparent, but before the leaves dry up the latter have a downy look on the surface in places. It is at those points that the spores are being given off from the tiny stalks which have protruded from the mycelium within the leaf. These spores spread rapidly and if conditions are favorable will germinate in half an hour and reinfect other leaves or plants. These spores are so numerous that it does not take long for a large area to become affected. It has been found that the disease spreads most rapidly in damp, warm, close weather, the spores germinating very rapidly under such conditions. In low-lying ground the air is moister than over elevated land, and the disease is usually worst there. Sometimes the disease will be checked before it has done much damage owing to a change in weather conditions, but it may break out again later on. Every leaf which is destroyed weakens the plant and lessens the size of the onions, hence it is very important to check it at the very start

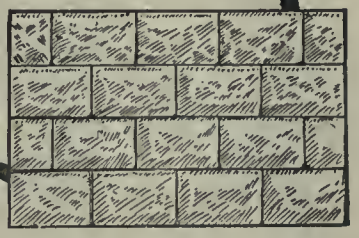
We'll Prove To You

that our sheet metal building materials are the right kind — most durable, most satisfactory, and most economical. Our "Book of References" will show you how our

Sheet Steel Sidings

have "made good" on many handsome homes. They give all the rich appearance of brick or stone, at a much lower cost. They come in a great variety of attractive designs. They make a house *fire* and *lightning-proof* —warm and weather-tight—handsome and comfortable.

A metal-clad house is the easiest to build. Anyone, who can handle a hammer, can apply our steel sidings. There is no waiting or interruption from start to finish, when you build of metal. Move right in when the last nail is driven—house will be dry and comfortable. Let us send you our Catalogue and "Book of References." You'll be interested in knowing how to build a better house than the ordinary, and for less money.



The Metal Shingle & Siding Co. Limited
Preston, Ont. 53

Mention The Canadian Horticulturist when writing.

THICK, SWOLLEN GLANDS

that make a horse Wheeze, have Thick Wind, or Chokedown, can be removed with

ABSORBINE

or any Bunch or Swelling caused by strain or inflammation No blister, no hair gone, and horse kept at work. $2.00 per bottle, delivered. Book 3-C free.

ABSORBINE, JR., for mankind, $1.00, delivered. Cures Goitre, Tumors, Varicose Veins, Hydrocele, Varicocele. Book free. Made only by

W. F. YOUNG, P.D.F., 194 Monmouth Street, SPRINGFIELD, MASS.

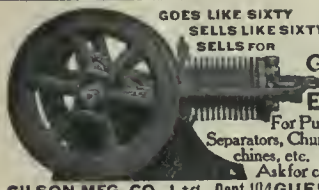
Canadian Agents, Lyman, Sons & Co., Montreal

Orchids Now is the time to place your orders for Spring delivery of freshly imported Orchids. **Our prices are very low, quality considered.** Also large stock of established Orchids on hand

CARILLO & BALDWIN
SECAUCUS, N.J., U.S.A.

WANTED

PERSONS having waste space in cellar, garden or farm, can make it yield from $4.00 to $30.00 per week growing Mushrooms for us. Send stamp for illustrated 16 page booklet on Mushroom Culture and full particulars. MONTREAL SUPPLY COMPANY, Montreal.



GOES LIKE SIXTY
SELLS LIKE SIXTY
SELLS FOR **$65**
GILSON
GASOLENE
ENGINE
For Pumping, Cream Separators, Churns, Wash Machines, etc. FREE TRIAL
Ask for catalog—all sizes

GILSON MFG. CO. Ltd. Dept. 104 GUELPH, ONT.

FLOWER POTS

Send us your Spring order for pots, etc.; which will receive our prompt attention.

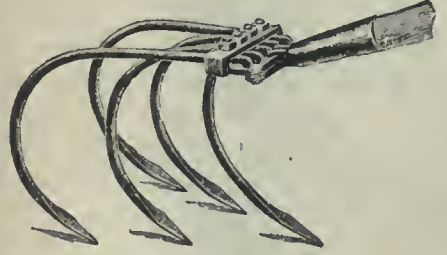
Try our pots for growing early tomato plants in.

SEND FOR PRICE LIST AND CATALOGUE

THE FOSTER POTTERY CO., LIMITED
Main St. West, Hamilton, Ont.

Mention The Canadian Horticulturist when writing

The "Buco" Hand Cultivator



Tines are OIL TEMPERED STEEL SPRINGS, adjustable to width. Handle 4½ feet long.

It gets DOWN DEEP, loosens the soil thoroughly, and cleans the weeds out BY ROOT. One man with a "BUCO" is worth two with a hoe. Less labor, more vegetables. Great around trees and shrubs.

Sent by Express on receipt of price, $1.50 each. Return after trial at our expense, and money back if not satisfactory.

BAILEY-UNDERWOOD CO., Limited
Tool Dept. NEW GLASGOW, N.S.

Mention Canadian Horticulturist when writing

or use some effective preventive measures. Once the spore has germinated and the disease entered the leaf it is not possible to reach the mycelium by spraying, hence it is necessary to spray early enough to kill the spores before they germinate. Spraying should be begun towards the end of June and the plants kept covered with Bordeaux mixture until the end of the season. If the disease appears before spraying has been done, spray as soon as possible. As the leaves of the onion are smooth it is necessary to put the mixture on in as fine a spray as possible, so that it will adhere well.

Niagara District Exhibition

There is plenty of courage and enterprise among the horticultural enthusiasts of St. Catharines and the Niagara District. Last year, the Ontario Government gave a grant of $500 to assist the holding of a horticultural exhibition at St. Catharines. The exhibition was held and proved a financial success. This year Hon. Mr. Monteith cut off the grant to the St. Catharines exhibition. It is understood that his reason for doing so was because the Government increased the grant to the Ontario Horticultural Exhibition at Toronto. In spite of this setback, St. Catharines has made arrangements for the holding of a large show on September 17, 18 and 19. Grants amounting to about $800 have been secured from the city, county and township councils, including one of $200 from the St. Catharines Horticultural Society.

This year, third prizes will be added in almost every section. The total value of prizes will be increased from $1,100 to $1,200. The exhibition will last three days instead of two as last year. The prizes for fruits will amount to about $450; flowers, $260, and vegetables, $150, not including between $300 and $400 in special prizes. A full orchestra from the 19th Regiment has been secured for every evening of the exhibition. The exhibition last year was a great success and included many fine exhibits. It is believed that this year's exhibition will surpass it in nearly every way.

Vegetable Canning Industry

The Ontario Vegetable Growers' Association purposes securing as complete information as possible regarding the extent of the vegetable canning industry in Ontario. Its object is to find the location of all the canning factories and to get in touch with leading vegetable growers in the vicinity of each factory. An effort will then be made to secure crop reports from the various centres, so that the growers may have an accurate idea of the extent and condition of the crops. This is something they have greatly lacked in the past.

A committee from the association, composed of Messrs. T. Delworth and H. B. Cowan, waited on Mr. C. C. James, Deputy Minister of Agriculture, recently, and consulted with him in regard to the matter. It seems that the Ontario Department of Agriculture has gathered a vast amount of information relative to the canning factories of the province which it purposes publishing in bulletin form, in the near future. It is probable, therefore, that the Ontario Vegetable Growers' Association will defer action until this bulletin is in circulation. The bulletin will give the names of the factories, with a list of their owners and of the principal varieties of vegetables and fruit packed in each factory.

Horticulturists who have use for hose will read with interest the advertisement of The Doolittle Hose Coupler. This is a device that, when attached to the tap, does away with the unpleasant task of screwing on the hose. Large sales have been made to J. H. Dunlop, the Dale Estate and others, which should be a guarantee of its merit. Read the advertisement of I. P. Doolittle on another page.

Warranted to Give Satisfaction.

Gombault's Caustic Balsam

Has Imitators But No Competitors.

A Safe, Speedy and Positive Cure for Curb, Splint, Sweeny, Capped Hock, Strained Tendons, Founder, Wind Puffs, and all lameness from Spavin, Ringbone and other bony tumors. Cures all skin diseases or Parasites, Thrush, Diphtheria. Removes all Bunches from Horses or Cattle.

As a Human Remedy for Rheumatism, Sprains, Sore Throat, etc., it is invaluable. Every bottle of Caustic Balsam sold is Warranted to give satisfaction. Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

The Lawrence-Williams Co., Toronto, Ont.

THE SUPERIOR STENCIL BRANDS MFG. CO. AND RUBBER STAMPS

WE MAKE ALL KINDS FOR ALL PURPOSES

124 YONGE ST. TORONTO.

IF YOU HAVE APPLES OR POULTRY TO CONSIGN

we can handle them for you to advantage. If apples are in car lots, write us and we can sell them for you f.o.b. your station

THE DAWSON COMMISSION CO. Limited
Cor. West Market and Colborne St.
TORONTO ——— ONTARIO

Imperial Bank OF CANADA

Established 1875

Head Office, - Toronto

Capital Paid-up, $4,800,000.00
Rest, - - $4,800,000.00

Savings Department at all Branches
Interest allowed on deposits of One Dollar and upwards and credited four times a year.

The Canadian Horticulturist

Vol. XXX SEPTEMBER, 1907 No. 9

The British Market for Canadian Fruit

Suggestions from a British Trader's Standpoint

"GOODS well bought are half sold," is a well-known maxim. We might say also that apples well picked are half packed. There cannot possibly be too much care given to the handling of the fruit in every stage, from the time it leaves the tree until the time it is well packed in the barrel. We have heard of fruit in some orchards lying about under the trees for days, and even weeks, before being collected and packed; such treatment renders it often unfit to stand shipping, and if it is exported, it mainly arrives bruised and dirty. There is a great deal in getting it to the store or packing house as soon as possible after it leaves the tree.

In grading, I would suggest that rather than make, say, a poor barrel of No. 2's, the grade should be kept well up, and a good barrel packed that will fetch good money, letting all "throw outs" go to the No. 3 barrel. There is everything in carefully sorting the fruit. If I were a grower, I should be inclined to make four grades of my fruit. All the "extra" and "fancy" I should most carefully select and pack *in boxes* (this box trade pays better than any); then go on in the selection of my No. 1's, 2's, and 3's. This might take a little more time, but it would well repay exporters who wish to make the best prices for their fruit, and who send it over on consignment terms, to fetch its full market value. Fruit well selected and reliable in packing will always fetch its price on this market.

As to "storing," it is obvious that we cannot offer suggestions from this side. The great aim, of course, from a market point of view is to store apples only for such a length of time as shall not detract too much from their appearance and soundness, and to use every means to prevent them from shrivelling; especially is this important in the case of Russets for the late trade.

GOOD PACKING IS IMPORTANT

Now for the key to successful export trade, namely, *good packing*. To ensure a good "tight" barrel without bruising the fruit, is the work of an expert. No grower should attempt to ship until he has satisfied himself as to his packers, as this is very often the dividing line between profit and loss and the rock upon which so many have foundered.

Experience leads me to say that, generally speaking, the Nova Scotian packers excel those of Ontario. It is with a desire to be one of the friends of the Ontario grower, that I thus tell him of what is, in some cases, one of his faults,

Instructive and Practical

THE CANADIAN HORTICULTURIST is well edited and extremely instructive. Through its articles, orchardists of long experience as well as beginners learn more about the fruit industry and the best means of managing trees and securing crops than they do from the best books on fruit culture. The advice given in this magazine on the selection of varieties, according to latitude and elevation, is worth thousands of dollars to the planter who, too often, is deceived by tree pedlars.—Auguste Dupuis, Director Quebec Fruit Experiment Stations.

and as only our best friends can perform so delicate an operation, I herewith make the assertion.

BOX TRADE WORTH GETTING AFTER

If the Canadian growers generally would study this special packing, and put all their "*fancy*" fruit into forty-pound boxes, they would find a fancy price awaiting them here, *with this proviso*, that *extra and fancy fruit only* should be packed in this way. The writer could find a splendid market for any growers who are disposed to go into this trade thoroughly, and invites correspondence on the matter, through the editor of THE CANADIAN HORTICULTURIST.

TRANSPORTATION

Now a few words as to shipping. We heard very few complaints last season, on the whole, of shipments arriving in bad condition. This is largely due to the care now exercised by the shipping companies. I must here say a word for the Thomson Line; their general business characteristics of promptness, politeness and push (on this side at any rate) make it a pleasure to do business with them, and their discharging and storage facilities at the Surrey Commercial Dock place them in the forefront as carriers of fruit and perishable products. I hold no brief for any shipping company but merely speak as I find, and of my experience of their capabilities in successfully handling this traffic.

Ever increasing care must, however, be given to protection from *frost*, at all points, especially during the latter part of the season, both during the time of storing and of shipping, and by both rail and shipping companies. I saw one of the finest parcels of Russets that came to this market last season, spoilt completely by frost; it was, of course, a very exceptional winter, but what a pity, after so successfully storing such valuable fruit all those months, to have them spoilt for want of a little more care on the part of someone!

Why do not the various associations in Ontario combine together in groups, and ship their produce to their own appointed representative over here, to dispose of on their account, as, and when, the markets are good, holding them in storage when the markets are fully stocked and the prices for the time being low?

The Surrey Commercial Dock Company would by arrangement allocate one of their spacious warehouses specially suited for storage purposes, and also keep it at a proper temperature for the storing of the fruit in its best possible condition.

Of course this storage facility could only be obtained by the combined action of the associations, which alone could guarantee a sufficient number of barrels as would pay the dock company in giving such facilities. But given this guarantee, they are quite prepared to study the interests of the trade in every way, and I have the assurance on this point

of the dock superintendent, whom I have seen personally in reference to this matter, and who assures me of their keen interest in the apple trade, and of their willingness to do anything to stimulate and assist it.

Here, then, is an opportunity for a combination of growers and shippers to so far *control their own market*, and there is no doubt that this is the thing to do, and that it will be done before very long is almost certain. If some such scheme is well prepared and organized, I believe that this is the system that will bring the exporter a bigger all-round net price for his fruit than he has yet secured.

To sell on f.o.b. terms is, in my opinion, to at once discount and depreciate the price of your fruit, as the buyer naturally must purchase at a price which allows him a big margin for risks.

In these days of quick transit and cool storage, refrigerator cars, and so forth, this risk is in reality now very small, but it is there, and the buyer covers it by the comparatively low price at which he buys, every time he makes a purchase. The grower no doubt loses this extra profit every time; whereas were *he* to take this, now, very small risk, and consign his fruit to reliable people on this market, I am confident that, on the whole, throughout the season, he would find himself a considerable gainer, by selling his produce on consignment terms, as against f.o.b.

Why not put this to a practical test this season and sell half your output on f.o.b. terms as usual, and send the other half to some reliable firm to sell for you, on consignment terms, and on a fixed rate for expenses, keeping separate accounts of prices secured under each system and comparing the results at the end of the season by the net prices as shown by each system of sale?

Just a few words as to the kinds of fruit that sell the best on this market, and that bring best prices. Golden Russet, Blenheim Orange, Cox's Orange, New York Pippin, Fancy Spy, Kings and all other Pippins, and so forth, are amongst those that stand in the first rank; with Baldwin, Greening, Stark, Wealthy, Fameuse, and so forth, running a good second; closely followed by Nonpareil, Canada Red, and Ben Davis, as good, useful apples of the cheaper kind.

Finally, I would impress upon Canadian growers the ever-increasing importance of the British markets as a profitable outlet for their produce. With our combined population of over 43,000,000 people, and our ever open door, the growing and exporting of Canadian fruit and produce generally should prove to be one of the most profitable of commercial pursuits, as the demand here is practically unlimited.—A British Canadian.

Apples—From Grower to Consumer

J. Arthur McBride, with Geo. Vipond & Co., Montreal

THE apple industry of to-day, to be an intensive and perpetual "money-maker," requires a thorough study of the exacting demands of the consumers (householders) throughout Canada and England, as they are the people whose trade largely governs the markets.

The history of an apple from the tree to the consumer is varied and interesting. Frequently, through someone's ignorance or dishonesty (and neither in these enlightened days is excusable), there is great annoyance and loss of business to the wholesale dealers in the large distributing centres who are selling directly to the private individual through the medium of the retail dealers. The consumers' demands are very exacting, and unless fully complied with, either the goods are returned or a heavy reduction is made. It would be the broadest and most liberal education possible if more of our growers and packers would come in close touch with these people who demand so much in quality and also have their eyes wide open in regard to "market prices." The price must be within reach of all, otherwise the consumption is curtailed.

One cannot travel through the apple orchards of Ontario and Quebec to-day without feeling that there is great room for improvement in regard to the time and attention bestowed on them in pruning, spraying and cultivating the ground. The practical and experienced labor spent on a well-set-out orchard, will certainly yield the owner a handsome dividend on the fruit in proportion to the labor he puts into it.

The apple business, the last few years, has been developing on a firmer basis of packing and distribution. With the general growth of our country, and an improved quality of our apples, the results are certain to be satisfactory, but we must bear in mind that the quality (either good or bad) is remembered long after the price is forgotten.

The responsibility and future of the apple trade rests equally—and sometimes heavier on the packer than on the grower. The apples, being of good quality, will minimize his difficulties, but too great care cannot be taken to make the contents of the package agree with the grade marked on the cover.

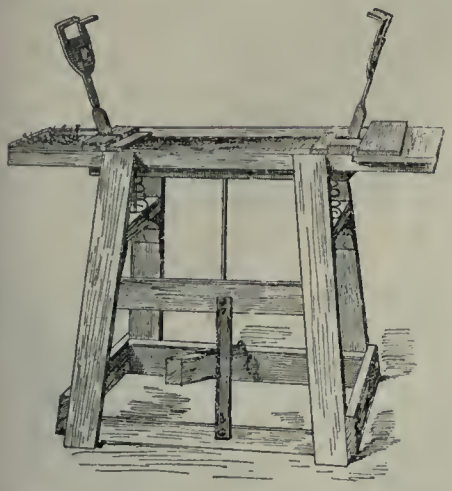
The advantage of producing the No. 1 quality is brought very forcibly to our attention and also to our pocket-books, when the yield causes growers to pack a larger percentage of No. 2 goods than the market can profitably handle; consequently the over-supply is sold at a loss—which comes out of the packer or grower. The demands (except at a reduced price) is for the No. 1 grade of fruit. The packing, handling and transportation charges are the same on all grades. The Canadian west insists on No. 1 almost exclusively, and the eastern markets will only handle a proportion of them. The great solution of the question is not to produce poor fruit. The grower, to be successful, will devote his time to good advantage on his orchards.

The Fruit Division at Ottawa, and the apple inspectors, coupled with The Fruit Marks Act, also the "Monthly Fruit Crop Reports," and so forth, are all doing a splendid work in the right direction to the mutual benefit of all concerned. They should have the hearty cooperation of every person who has an interest in the apple business. The Department's field of operation is large, and will undoubtedly be extended both in regard to more inspectors and general equipment. THE CANADIAN HORTICULTURIST'S suggestion that a fruit growers' conference should be held in 1908, similar to the one held in March, 1906, should have the fullest endorsement of every grower from the Atlantic to the Pacific. A Dominion conference should be an annual event.

Another phase of the apple business which is coming into prominence is the cooperative fruit growers' associations. While this movement is largely in its infancy, there has already been much good accomplished. The field of their labor is extensive, but with the most careful management and supervision of a responsible head, they should be a great influence for good in the apple-growing district. If the associations work along the lines of the California orange districts, with a central packing-house, uniform and experienced packing, with an established brand and reliable officials, they will command the respect and approval of all liberal-minded business men. Further, if these associations will live up to these requirements, they should place their apples on the market at a price (f.o.b. at the packing-house) that is regulated by the intrinsic present value of the fruit, according to the crop condition and general quality, and not base these ideas by some far distant, imaginary price which may be realized for a small portion of the fruit. Let the price be such that the dealers can make a reasonable turn-over and thereby establish a connection with him for the following seasons. The sales made in the early season, prior to storing last season, were the most profitable, and while there may be exceptions, the fall sales are usually the most satisfactory. The dealers are prepared to buy apples under these conditions and at a good price, which will remove the necessity of any uncertainty of the foreign commission markets.

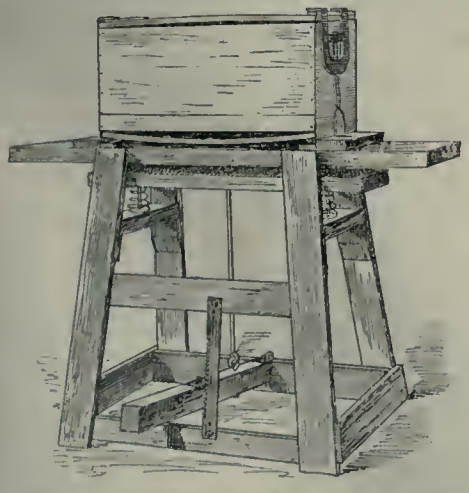
How to Pack Apples in Boxes*

THE basis of rapid box packing is good, even grading. The packer should have before him an even run in point of size, without which it will be impossible for him to do rapid work, or indeed do good work. Grading for quick, good work in box packing is,



Nailing Bench, Easily Made with Assistance of Blacksmith

of course, dependent largely upon size and color. It will not do to place apples of markedly different sizes in the same box. It is desirable neither for appearance nor for rapid packing. No accurate calculation can be made upon the style of pack, and no uniformity can be secured in the layers, if the sizes are markedly different. Nevertheless, it is impossible to secure in the apple perfect



Box of Apples on Bench with Cover in Place

uniformity in size and shape, but this inequality in size and shape must never be so great as to offend the eye of the fastidious customer. It is upon these very slight differences of size and shape, however, that the best qualities of a good pack depend.

It must not be understood that any good packer will associate two apples differing materially in size. The really skilful packer will take the very slightly smaller apples and use these at the ends of the boxes, the larger always going towards the middle of the box. But this difference in the size of the end and the middle apples is so slight that only the practised eye of the packer would detect it.

The skilful packer will also take advantage of the slight inequalities in shape. Very few apples are exactly symmetrical, whether you cut them from stem to basin or transversely. If then the packer finds that there is a slight slackness in a row of apples which he is packing across the box, he can usually make this perfectly tight by simply turning the specimens one way or the other. Of course, the opposite fault of being somewhat too crowded can be remedied by the same process. Thus the packer will build up a layer from end to end of the box with apples slightly smaller in the ends, with the larger ones towards the middle of the box, and yet the most critical customer would not be offended by any difference in the specimens.

It is perhaps not equally important to grade to color, yet this adds greatly to the appearance of the finished box. If then the packer has the choice, he will put the lighter-colored apples in one box and the highly-colored apples in another. Both boxes may sell equally well, but neither would have sold so well had the apples been mixed in color in each box.

It may not be superfluous to say that it is presupposed that no wormy or scabby apples are permitted to go into boxes. This would exclude a very large part of the apples in eastern orchards. It may as well be understood, once for all, that the packer who has no higher conception of the box business than to think of it as a receptacle for scabby or wormy apples, had better pack his apples in barrels. He will get a much better price for them, and will not be lowering the reputation of the high-class apples that should be packed exclusively in boxes.

It may be well here to draw attention to another matter of observation, namely, that very few men who have been used to barrel packing ever succeed in the box trade. Rougher methods that have served them in the barrel trade are unconsciously practised when they take up the box trade, and failure is the inevitable result. Barrel packers, therefore, who do attempt the box business must divest themselves entirely of many habits and methods of work that may not have interfered with their being fairly successful as barrel packers.

It is Bad Practice to Leave Apples in Piles on Ground in the Orchard

STYLE OF PACK

The simplest method of packing a box of apples is nothing more than the barrel pack practised with boxes. The face is placed upon the box by a method quite similar to that of facing a barrel, and the apples are then placed on the top of this face with no regard to regularity. It is needless to say that such a method of packing a box will result in absolute failure. It has been tried in eastern Canada many times, and always with disastrous results. The box is not nearly so well suited to this style of packing as the barrel, and consequently it is more difficult to get a tight package

* Extracts from Ottawa bulletin, No. 19, entitled, "The Packing of Apples in Barrels and Boxes," by Alex. McNeill, Chief Fruit Division.

and if a tight package can be obtained, it is not acceptable to the customers.

PACKING IN TIERS

One great advantage of boxes is that close distinctions in size and color are easily made. Customers then can secure exactly what they wish with reference to these two qualities. The number of apples in a box can be determined almost instantly by the style of the pack, but this number should always be placed on the end of the box by the packer, when he completes his work. Apples, even of the same variety and upon the same tree, vary so much in shape that it is quite possible to get an almost endless variety of packs, all fairly regular. Some practised packers claim to distinguish sixty different styles of pack. This is quite possible, if we count not only the distinct varieties of pack, but also combinations of these varieties in the different layers of the box. It is not necessary, however, to be familiar with so many packs in order to be successful as a box packer. Familiarity with half a dozen or more will enable an intelligent person to pack successfully all common varieties, and, having learned to use these half-dozen styles of pack, the packer will have little difficulty in combining the features in these for the purpose of packing any odd size or shape that may present itself. In a general way, the size of the apples is indicated by the number of tiers or layers in the box. The box is supposed to be open, so that it is eleven inches wide and ten inches deep. If, then, three layers or tiers of apples will fill the box properly, that sized apple is spoken of as a three-tier apple. In the same way, if five layers or tiers fill the box, the size is said to be five-tier. The three-tier apples would be the largest that would be packed, such as the Alexander or overgrown specimens of the King and Spy. These may be so large that only forty-five will go in a box. It is possible to get a three-tier apple with sixty-three in a box. In the same way, a four-tier apple usually contains ninety-six specimens, but it may contain as high as 112.

If the apples of one layer are placed in the spaces between the apples of the one below, there would be, say, four layers of apples intermediate in size between those that would fill the box in three layers or in four layers if packed directly over each other or straight pack. Such intermediate size would be styled a three and a half tier size. Similarly, the intermediate size between a straight four-tier and a straight five-tier would be spoken of as a four and a half tier. A packer soon learns to associate the number of specimens in a box with the particular pack which he adopts.

From the smallest Fameuse that should be packed, to the largest Kings or Alexanders, there are between thirty-five and forty different sizes, each of which requires a different style of pack. But let the beginner in box packing take heart. These different styles of packing are really only modifications of two general types. The first is called the "straight" pack, where every apple but those in the first layer is directly over another. The second is called the "diagonal" pack, in which no apple is directly over any other which it touches. Usually, the apples in the alternate layers are directly over each other, but never in the contiguous layers.

The "straight" pack is modified by the number of layers in the box. When the box contains three, four or five layers, each apple directly over another, the pack is said to be straight, three, four or five tier respectively. Each straight pack is again modified by placing the stem up or down, towards the side of the box or towards the ends. Even so slight a change as placing the stem one way in one layer, and the opposite way in the next, will sometimes make the difference between a tight and a slack pack. As there can thus be four or more modifications of each of the three packs, twelve or fifteen classes of apples, differing in size or shape or both, can be packed in this way.

The diagonal packs may be modified even more freely. A modification of the diagonal pack in common use is called the "offset." Place three apples touching each other, but leaving a space about the width of half an apple between one side of the box and the last apple. The next row of three would be placed so as to leave the space on the opposite side. A very useful diagonal pack is made by placing three apples in the first row, one in each corner and one in the middle. The second would then be made with two apples, the third with three, and so on, until the tier is completed. The second layer would be commenced with two apples and alternated with three, as in the first layer. The first and third and fifth layers, and second and fourth, would be the same, and directly over each other. By commencing this pack with two apples, instead of three, the box will contain two apples less. With larger apples, the two-two pack is used. This is begun by placing an apple in one corner of the box and then dividing the remaining space evenly with another apple. Into these spaces are pressed two apples forming the next row. This is continued till the box is filled. Four layers will fill the box, the first being directly over the third, and the second over the fourth.

Continued on page 218

A Busy Scene During the Peach Season—Shipping from Beamsville, Ontario

Marketing Peaches

Picking and packing peaches are matters that require the personal attention of the grower. These cannot be trusted to hired labor without strict oversight. The peach should be picked and packed as carefully as an orange; should never be poured from basket to basket; should never be bruised in handling; should be carefully assorted by grades, and put up for market with an eye to attractiveness. It is not strictly proper, however, to put red netting over green fruit.

There is just the right time to pick for market, and this is something to be learned by experience. A day too early, and the peaches are green; a day too late and they are over-ripe and will be soft and bruised and unsaleable before they reach the consumer. No fruit requires greater expedition and better judgment in picking and marketing.

The Harvesting and Marketing of Export Apples

P. J. Carey, Dominion Fruit Inspector, Toronto

THE bulk of the apple crop of Ontario, except that in the hands of the cooperative associations, is now in the hands of the dealers or middlemen. As far as I have seen, the prices paid, if not in some cases, perhaps, as high as the demand should warrant, are such as should leave to the growers handsome profits for their labors.

In the principal apple-growing districts there are three methods of selling in practice: First, "lump" selling, a fixed price for all fruit on the trees; second, a fixed price per barrel for all fruit on trees; and third, a fixed price per barrel for selected fruit. The latter, although by far the most commendable, is practised the least.

The "lump" method is practised the most, which shows the strong desire on the part of the ordinary apple dealer to take a little shot at the game of chance and try to do the other fellow. The other fellow, or grower, too often gets the worst of it from the fact that his eye is not as practised as the dealers. The desire to gamble is not at all confined to the dealers. Many of the growers delight in a little gamble and, if they are bitten, say nothing about it.

The other method of selling at a price per barrel for all the product of the tree, including windfalls in many cases, is the safer one for the farmer, inasmuch as there is no gamble in the deal, and everything goes in the barrel. It is wonderful how carefully everything in the shape of fruit is taken from the trees and ground. I know, however, of a few exceptions to the rule, where men of public spirit will not allow rubbish to leave their orchards to be placed on the market.

These two methods of selling have little to recommend them. In the first place, they are not based on business principles, and the business man who desires to handle fruit, if he waits until he can see what he is buying, is left waiting and consequently is out of business. In the second place, by these methods, thousands of barrels of culls find their way into the fruit houses to be exported later, thousands of barrels of "stuff" that should never be placed on the market, except perhaps as a by-product. Shipping this kind of rubbish is sure to injure the trade, but there is a little consolation in the fact that the trade does not suffer now as much as in the days when the culls were sandwiched between two good "faces."

A WARNING TO GROWERS AND DEALERS

Passing to another phase of the situation, I may say that, while the grower seems to be safe, having sold for a good price, while the dealer feels that he is safe, from the fact that already he can turn over his "pack" at a handsome profit, and while from every indication this promises to be a good year for the apple man; yet, I would warn all concerned there is a possible chance for many a slip between now and March, 1908.

ESSENTIALS TO SUCCESS

There are three great factors that figure in the success or failure of the season's operations. The first is the picking and packing; second, the weather conditions; and third, the transportation facilities. The first essential is a neat, strong package and the securing of good, experienced men to do the work. In my capacity of a Dominion Fruit Inspector, I have seen so many "packs" that I think I am able to say: "Show me the packages and the workmanship of a 'pack' and I will tell you whether the operator will make money in the apple business or not."

The next essential is to pick the fruit in season. I wish to draw special attention to the fact that thousands of barrels of our fruit go forward, either picked nearly a month too soon or, on the other hand, nearly a month too late. I have examined barrels of apples of the standard varieties, when one would be puzzled indeed to name the variety, unless guided by the name on the package. Such early picked apples have neither color nor flavor. The dealer who sells the Englishman a barrel of such fruit, is giving him a barrel of Canadian "Spys" or "Baldwins" in name only, and is not taking the best way to secure him as a steady customer.

Picking Peaches in the Niagara District—Note the Well-Constructed Ladders

A large percentage of our fruit remains on the trees too late in the season. It is true such fruit has color and flavor, but at the expense of being more or less damaged by frost or wind storms. A large percentage of our apples were frosted on the trees last season, which had a great deal to do with its poor keeping qualities at the close of season.

INFLUENCE OF WEATHER CONDITIONS

The heating of fruit packed in barrels in warm weather, has more to do with the bad condition in which our fruit

arrives on the other side, than all other causes combined. Shippers of fruit do not seem to appreciate this fact, as no special effort is made to cool the fruit before shipping. It is a common occurrence, especially in the month of September, to see carload after carload of apples going aboard ship in a heated condition, and showing a temperature of as high as eighty-five degrees, and large quantities of the fruit in the first stages of decay. It is needless to say that fruit shipped under these conditions can bring nothing but failure as a result. Experiments have shown that fruit packed and closed in a barrel in warm conditions, and placed in a low temperature, will take from six to seven days to cool at the centre; hence, the necessity of packing cool.

A WORD ABOUT SHIPPING FACILITIES

For the last season or two, shippers know too well of their troubles in securing proper cars for carrying fruit to the seaboard. The greater trouble is in the winter traffic, and it is a deplorable fact that thousands of barrels of our choicest fruit have been practically lost through being frozen while in transit.

The damage in this way is far-reaching. It is not only the actual quantity frozen from which we suffer, but when a ship arrives on the other side and traces of frost are found, the whole cargo often is reported frosted, when perhaps only a few cars are damaged, and as a consequence all shippers who are unfortunate enough to have apples on that boat will suffer.

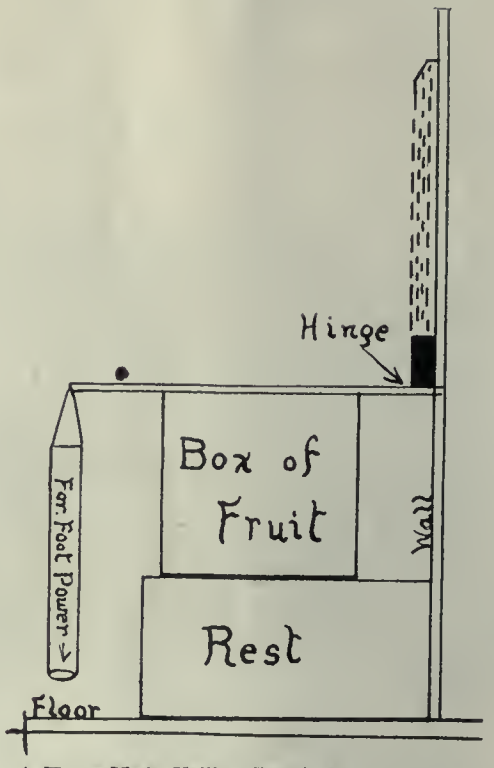
The problem that is up to the growers and handlers of fruit to work out is the remedy or remedies for all the defects along the line of handling, in order that they may make the most of their great possibilities. The fruit growers of Ontario have within their grasp one of the best means of money making in the land if their operations are guided by common sense, application and honesty.

Pointers on Box Packing

Robt. Thompson, St. Catharines, Ont.

We hear expressions from some of our growers that box packing is not on the increase, but any one in touch with the buying public will testify that never before has there been so many enquiries for box fruit. I had much pleasure in looking over Mr. A. McNeill's bulletin on "Packing of Apples in Boxes and Barrels." Mr. McNeill evidently has taken a good deal of pains to gather all the information available and to present it in good form.

I wish to emphasize one or two points. First, as to the material in the box; the ends must not be lighter than five-eighth inches and three-quarters is preferable. The sides three-eighth inches and the top and bottom one-quarter inch. If poor pine or poor material is used, it may be necessary to use one-half inch for sides, and three-eighths for top and bottom, but I would prefer to refuse such material. Second, the fruit, whether it be apples, pears or peaches, must be placed tightly in the box and well filled in the centre so as to have a good bilge. For the ordinary everyday commercial pack, especially for beginners, it will be better to use the three and a half or four and a half tier pack, made by placing the fruit of the second row in the space between the fruit below and



A Home-Made Nailing Bench and Box Press

Diagramatic sketch of bench used in packing house of Mr. A. E. Sherrington, Walkerton, Ontario. A similar one could be constructed by any fruit grower. It is simple, cheap and efficient.

not directly on top of each other. This style of a pack not only is easier to do, but will remain tight better and carry the fruit in better shape.

Another suggestion I would give Mr. McNeill is that he start a movement to amend the Fruit Marks Act by adding to the box regulations that all fruit in boxes must be placed in tiers. My reason for giving this is that some of our fruit men are facing the fruit in the first tier of the box, and then pouring in the fruit, filling the balance of the box indiscriminately. I know of one place where this is followed, and the price the pack is quoted at is seventy-five cents a box for apples, and same place is offering barrels for $2.25 for No. 1. Any person who has any knowledge of packing knows that at these figures the barrels will net the grower or packer more money, provided the boxes were packed properly, but when a quotation as above goes out as against $1.00, or even $1.25, as many apples in boxes are being quoted, the buyer will naturally think the low figure will be the cheaper, when in reality it is the dearest. To undertake to put fruit in boxes without layering at once shows that the packer has not the first idea of box packing.

Harvesting Blackberries

H. S. Peart, B.S.A., Jordan Harbor, Ont.

The blackberry deserves rather more recognition than it is receiving from professional fruit growers in southern Ontario. It succeeds best on sandy loams that are fairly well drained. The objection has been raised that it is difficult to harvest, but this objection does not discourage the grower who prunes his plants properly.

The blackberry is not ripe when it first becomes black. Many growers make a practice of picking as soon as the fruit turns black and some even earlier. This is a great mistake, as the best quality is not yet developed. The fruit should be allowed to remain on the plant for at least one day after it has turned black. For home use leave the fruit until soft. Pick only when dry. Pickers usually require frequent cautioning in order to prevent them from bruising the berries.

The berries should be picked into clean four-fifth quart or two-fifth quart boxes in which they are to be sent to market. The smaller size is gaining in favor as the fruit at the bottom of the box is not so crushed as in the larger one. Fill as full as the shelving in the crates will allow so that the package will present a full appearance when placed on the market. As with other small, soft fruits, only gift packages should be used. No other one thing detracts so much from the appearance, and consequently the ready sale of any product, as stained crates and boxes.

After picking, the fruit soon becomes brown and acquires a bitter taste if allowed to remain in the sun. The sooner it can be removed to a cool, shady place the better.

A good fancy trade may be worked up for blackberries in most of our cities, as the bulk of the fruit offered is inferior. A high-grade article will well repay the extra trouble incident to the establishing of a good trade with special customers.

Gather and burn the broken boxes in the berry patch.

A cover crop sown in the orchard this month will hasten maturity of wood in the fall and protect the trees in winter.

Perennials: The Backbone of Manitoba Gardens

Dr. H. M. Speechly, Pilot Mound, Manitoba

(Continued from last issue)

HAVING glanced at some of our hardy perennials of the bulbous sort, we now turn to notice some of the many beautiful perennials which are fibrous-rooted. Perhaps the earliest

Artistic Gardening in British Columbia

of these are the white *Arabic alpina* and the Iceland poppies. Both of these bloom quite early in May, in fact, soon after May 1. The scent of the former is practically sweet and aromatic, recalling childhood's days in Old Country gardens when bees hummed around great, massy clumps of white arabis in the genial springtime, after April showers had passed. Have you tried with arabis the silver-leaved rock alyssum, whose pale lemon-yellow flowers closely follow the arabis?

It does not do to smother arabis or alyssum with protection. Their own leaves form a mat over their roots much as do the leaves of pansies. I shall not here treat of pansies because they are so well known, but of course among early perennials pansies rank high.

Vieing in earliness with these and surpassing them in grace of form, if not in color, are the dwarf Iceland and Alpine poppies. First, dark woolly buds rise over the fern-like leaves in mid May; these burst, and casting their cases aside, shake out the crinkled petals until a cup is formed of white, cream, yellow, or an orange almost red. So these flowers bloom till August opens.

ALL KINDS OF COLUMBINES

Soon after these poppies flower, or even before, queer little purple stems with purple knobs have been pushing up beside them. These enlarge and increase until early June, when from their clumps of fresh green or bluish-green appear the columbine flowers; the earliest are white, then come the deep purples; the violets tipped with white, and last the exquisite spurred varieties. Oh, ye dainty columbines, how modest and coy are your hanging cups, how quaint the crooks with which ye shepperd the insects that search your recesses for nectar! It seems too fine a plant, does the columbine, to be hardy, and yet there is none more hardy. Yes, your garden in June lacks much, if you have no columbines. Mingle with the cultivated varieties some wild plants, whose red and gold are a fine contrast even though the flowers are so much the smaller. Mayhap the bees will cross the wild with the tame and give you a new hybrid. Often the wild meadow rue finds its way into the garden and seems half like a columbine, half like a maiden hair fern.

Now how do you raise arabis, alyssum, Iceland poppy, and columbine? Sow the seed this spring and they will bloom next spring; but Iceland poppies, if sown early in the spring, will bloom late in the summer. Grow the first three in clumps; but each columbine should have six inches all around if you would have the finest effect of flowers and foliage.

Here I would put in a plea for arranging perennials so that they may be seen to their best advantage both as to flowers and foliage. The leaves of bleeding heart, all the larkspurs, monkshood, the columbines and many others form the background not only for their own flowers, but also for those of other plants, notably the annuals. This is a fine trait of perennials. After coming to the footlights of the season during their own flowering period, they retire to the background as a contrast to the flowers yet to be provided by their later companions. Therefore, a planting arrangement of your perennials, paying due regard to their size and earliness or lateness of flowering, gives style to any garden. Most gardens have certain spots where a clump of bleeding heart or achillea or peony gives distinction to that spot.

THE WHITE ACHILLEA

Every year people notice a mass of white achillea which is placed at a point calculated to catch the eye at a distance. A friend of mine was going to throw away some clumps of this plant as being too much of a weed, but I secured those same "weeds" at once in order to have a stock of them for giving away. What is achillea? It is a first cousin to the common Yarrow of our prairies. The white *Achillea grandiflora* is sometimes called "bridal rose"; but there is also a handsome red achillea; and yet another yellow variety, *Achillea sericea.*

Kept within bounds, achilleas are splendid garden flowers, being both

A Perennial Triangle in Garden of Mr. J. B. Lewis, Ottawa

early and free bloomers and as hardy as rocks. You must watch their aptitude to grow out all round and into everything; in fact they tend to make rings by exhausting themselves in the middle and flourishing at their outside edges. This is avoided by cutting out the free edges and returning them to the centre if necessary, and by keeping the centre enriched with well-rotted horse manure.

Sweet Williams are beautiful spring perennials, but require a front place when associated with say Oriental poppies, scarlet lychnis and larkspurs. In fact, you can make a beautiful border by growing larkspurs further back, the dark blues behind and the light blues a little forward; then tiger-lilies and scarlet lychnis occupy a middle place; in front of these, place Oriental poppies and columbines; while in the front row Sweet Williams and Iceland poppies will intermingle with dianthus, pinks and pansies.

SHOULD PLANTS BE CROWDED?

One word about overcrowding your plants. An old-timer walked round my garden last summer when I happened to be out, and while appreciative of Nature's generous show of bloom there, he offered the legitimate criticism that I had overcrowded many of the plants. He did not know, however, that the overcrowding was partly deliberate. Unless a prairie garden is completely protected on the north and west sides—as, by the way, nearly every farm garden should and can be—that arch-fiend, a strong wind, will break down all unsupported plants. My garden is much afflicted by west winds, which swirl round the house and do more damage than any frost. I find it better, therefore, to be a little on the crowded side as a rule rather than to be horticulturally correct. Also last year I was experimenting with new plants, with whose habits I was unfamiliar, and so the crowding was partly involuntary. It is correct, however, to thin out your perennials so as to give them plenty of room unless they are very dwarf, or unless their habit is to grow in masses. Thus arabis and Iceland poppy grow in close masses, but larkspurs and peonies need lots of room.

PLANT ACCORDING TO NATURE

Another point to make is this: Plant your perennials according to the nature of their natural habitat. The foxglove, for instance, grows in the wild state amongst thick shrubs and bushes, or tall plants. Plant the cultivated foxglove amongst your ornamental shrubs. You will then be surprised how well it will do and how fine it will look. The tall flower spike blooms from below upwards and looks scraggy if grown in an open spot, as the lower flowers fade and die away. But if grown singly or in clumps amongst bushes and other perennials it will be particularly fine and effective.

One final word must be said about those tall background perennials, the larkspur, the monkshood and the golden glow. Of the various blues sported by the larkspur, I commend the light blue for earliness and delicacy, but the dark, deep blue with a white eye is the handsomest of the dark blues. Have them well back in your border. The monkshood is not so tall, but it consorts well with tiger-lilies, the French-grey of the one contrasting pleasingly with the orange-red of the other. As a late free-bloomer the golden glow is invaluable, and being very hardy is a good perennial, but needs to be kept in bounds both as to roots and stems. Tie the growing stems to a stake six feet high in the early summer or the winds will break it down. If it is placed amid ornamental shrubs, these latter will hide the rather scraggy withered lower half of the stems in the late summer. Moreover, a background of green trees or bushes will give an extra charm to the yellow of its golden glow.

The Gladiolus and Its Development

TO appreciate the advancement that has been made in the development and cultivation of the gladiolus within recent years, one should visit the trial ground of Mr. H. H. Groff, Simcoe, Ontario. Varieties, unknown to the outside world, are there in innumerable quantities and striking magnificence. From the natural wild type to the world-famed Groff creations is a long step, but it has been bridged and crowned with success by years of hard work and many disappointments. Those who desire size can see corms that measure six inches in diameter, and bloom spikes that are six feet in height, with flowers that measure five and a half inches in diameter. Colors are there in endless variety. Almost any shade, tint, or marking that one could imagine is to be found. It would seem that existing gladiolus color charts are of little use, as they do not embody all the colors in Mr. Groff's collection.

One of Mr. Groff's New Gladioli, No. 218

SOME NEW VARIETIES

Two new varieties in scarlet, named Dominion and Empire, were observed by a representative of the THE CANADIAN HORTICULTURIST. Their appearance would indicate that they will win popularity. Their size, rich color and sturdy growth will make them favorites. Another variety, La Luna, as its name implies, reminds one of the moon when rising, as the creamy petals gradually deepen into a rich yellow, and a red blotch in the centre completes the illusion. Blue Jay also gets its name from its appearance, as at first glance it resembles the bird of that name. Evolution is a beautiful shade of pink; its stems have a graceful drooping habit which, when placed in a vase, produce a pleasing effect.

There are hundreds of kinds of gladiolus at Groff's that are unnamed. New kinds are not given names unless they possess exceptional merit. Several years of repeated trials often pass before a new variety is pronounced worthy of a name and a place among the higher grades.

THE WORK IS INSPIRING

The work of improving the gladiolus was undertaken by Mr. Groff merely as a hobby. So enthusiastic has he become since the start, that now, during the season, he works from daylight until dark. Much work is necessary during the blooming season. Every morning at daybreak, clothed in rubber boots and apron, Mr. Groff can be found at work, determining the results of hybridizations of years before. The fascination of witnessing the birth of a new variety is so interesting that it is not surprising to find Mr. Groff so enthusiastic and earnest in his work.

In the work of originating a new variety, system prevails as thoroughly as it does in the after operations of cultivation and selection. When Mr. Groff enters the field for this work, he straps around his waist a leather belt, to which are fastened pouches containing labels of different kinds, books for registering new numbers as they are conferred on new kinds that are worthy, and for recording descriptions, knives, pencils, tweezers, and so on.

Long practice has enabled Mr. Groff to tell almost at a glance whether or not a variety, blooming for the first time, is unlike the others in his collection. If he is uncertain, he compares it with all others that bloom at that season. If it proves to be unlike them, and worth while, it is given a number. Labels of various colors and markings are used for different purposes, so that employees may know what to do with spikes so marked.

Much has been written about the beauty of orchids, their wonderful markings and delicate tints, but for growing in the ordinary man's garden, they are useless. Many of the new hybrids and varieties originated by Mr. Groff surpass in beauty the orchids, and they can be grown in the gardens of the poor as well as in those of the rich. No greenhouses are required to coax them into bloom, and no particular care is needed. A profusion of color may be had throughout the season. Gladioli are becoming more and more popular each year.

Lawn and Garden Hints for September

SUMMER is gone, and while the sun still is uncomfortably hot at times we will soon be glad of its warmth. Summer flowers, too, soon will be faded

A Variety of High-class Young Evergreens
Growing in Nurseries of Brown Brothers Company

and dry, but not our pleasures derived from them. It is natural for some amateurs to think there is nothing to be done in the garden for a while, but those who look ahead know that in September, but usually towards its end, it is time to prepare for beautiful displays in the bulb beds for next spring. After the first frost, the making of bulb beds should commence. When preparing beds, dig quite deeply, pulverize the soil as fine as you can, and make it rich with well-rotted cow manure; the bed should be well drained.

Do not wait until time for making beds before ordering the bulbs, look over the catalogs, and send your order at once. By not delaying, you will profit in many ways: First, you will get better bulbs than towards the last of the season; second, you will get the bulbs in time for the best results; third, you will have the bulb bed ready for winter and the bulbs will get a good start and do much better when the blooming period comes. When the bulbs arrive, set them out as soon as you can. If the bed is not ready, keep them covered until wanted.

Indoors, bulbs may be planted for winter flowering. The favorites are: Roman hyacinths, narcissi and tulips. Other choice bulbs that you should try if you never have before are Easter lilies, oxalis, crocus, tritilea, ixias, and bahiana. Place the bulbs in well-drained pots and put them in a dark place for a time until growth is well on the way. Do not water too freely, except at the start, when the soil should be saturated.

IN THE FLOWER GARDEN

When sweeping garden walks and drives, do so as lightly as possible, so as not to disturb the surface more than is necessary. Always sweep from the edges to the centre.

Go over the garden and gather all ripened seed that you wish to save. You may desire to grow plants next season from ones that were particularly attractive this year.

Manure for fall mulching of roses should now be procured, mixed with a small quantity of soil, and turned occasionally to pulverize and get it in condition.

As soon as frost has touched the foliage, the bulbs of caladium, or elephant-ear plant, should be dug. Place them in a dry room for a week or two, when they can be packed in dry sand, and put in a temperature of 45 to 50 degrees for the winter. See that they are safe from mice and rats.

Bulbs of tigridias should be dug before frost, dried for a few days and stored away in dry sand in a warm room or cellar in a temperature of 50 to 55 degrees.

All plants growing outdoors and intended for house use this winter should be lifted and potted. Do not use pots that are too large and avoid watering too freely at the start. Examine closely for insects before taking them into the house. Many house plants also need re-potting, or a renewing of soil in the pot. If you have not arranged for potting soil for use later on, when it is difficult to get, do it now before too late.

Do not cultivate very much this month. It induces late growth that may be injured before it has time to mature.

Benches Containing Innumerable Varieties of Gladiolus used by Mr. Groff for Making Comparisons

Perennials that have become too large, may be dug and divided. Take out all decayed or weak roots when this is done, as better plants will result. Most perennials that start early in the spring must be planted about

the end of September or first of October. Plant peonies, phlox, golden glow, bleeding heart, and German iris. Seeds of hollyhock, that grand old favorite, may be sown in rows and thinned out next spring, or transplanted as you desire.

Before heavy frosts come, secure a few evergreen branches and lay them over your pansies. On top of them shake a covering of dry leaves; this should be done so as not to allow the plants to thaw out before spring, which they would do if left uncovered.

WITH THE FRUITS

When webs of the fall web-worm are observed, either cut out the branches to which the web is fastened and burn or destroy the nest while on the tree by holding a lighted torch beneath it.

As soon as blackberries and raspberries are harvested, the old canes that bore fruit may be removed. It is thought in some sections, however that it is wiser to leave the old canes until spring, as they serve to catch and hold the snow, which protects the roots. It is better not to cut back the tops of this year's canes until next spring. Should they be injured by winter-killing, they can then be cut back to new wood.

Black raspberries may be propagated this month. If you have a particularly nice bush or number of bushes from which you wish to secure young plants, it may be done by tip-layering. The ends of the long canes will assume a snake-like appearance, bend over and go wandering for a fastening place on the ground. Place the tips beneath the soil, fasten them there by firming with the feet or by means of a clod of earth. They will take root and in the spring time be ready for transplanting.

Currants and gooseberries may be pruned any time in fall or winter. If desired, also, new bushes may be planted, but it is better to wait until spring.

THE KITCHEN GARDEN

By sowing salsify now, it will get started this fall. Then, if protected through the winter, it will be ready to grow as soon as the weather will permit next spring.

Make a sowing of spinach. Protect by a frame or other means during the winter.

Have you ever grown Chinese mustard? If sown now, it will provide a salad plant for late fall use. It grows rapidly.

Continue to bleach the celery. It may be done either with boards or with earth.

Early in the month, sow winter varieties of radish. Harvest them before frost and store in sand in a cool cellar.

Harvest your potatoes early, or as soon as they are matured. By so doing, you will largely prevent scab and save them from white grubs and mice.

When danger of frost comes, gather all the remaining fruit from the tomato and squash vines. Tomatoes will ripen in a dry cellar. Store the squash in a dry atmosphere and in a cool temperature. If you intend to force lettuce indoors, sow the seed now.

Hydrangea Paniculata Grandiflora

As the plants require about ten weeks to mature, they will be ready for use about the middle of November.

Picking Fruit at Home

Do you know the proper time to pick fruit? It is something that cannot be told by word definitely. It requires practice and experience. There are a few general factors, nevertheless, that indicate how and when.

Most varieties of pears for home use should be left on the trees until well matured, but picked before they commence to turn yellow. No pear should be picked before it will separate easily from the fruit spur when gently lifted. When wormy pears commence to drop, the pears are ready for harvesting.

Peaches for home use may be allowed to ripen on the trees; for storing, they should be picked when fully matured and grown, well colored, yet firm, but by no means either over-ripe or green. Peaches that are picked too green will shrink rather than ripen, and they never attain their proper flavor.

Pick quinces when they are well matured and colored on the tree. If picked before they are ripe, they will not color well.

Plums for table use should be allowed to become fully ripened on the tree to obtain the finest quality. For storing, pick when fully grown and well colored.

Early fall apples for home use or near market should be allowed to ripen on the tree; for shipping, pick when fully grown and well colored, but before they commence to soften. Late fall and winter varieties may be left until they ripen in the cool weather of the fall, but picked before there is danger of heavy windfalls.

Protection for Perennials

Editor, THE CANADIAN HORTICULTURIST,—In the August issue the question of protection for perennials was asked, and answered, but I think the full information asked for was not given. The cause of so much killing of perennials and other hardy plants in winter is caused by over-kindness, and from want of knowing how to protect. In this country most amateurs cover their border plants too soon, and too heavy. They naturally imagine that whenever the plant has gone to, what some think, rest, it should be covered and the warmer it is made the better. Now, let us take a closer look at this poor occupant of the soil. How would we like if our heads were put into a box and asked to live? And yet those plants are placed in somewhat similar condition, when covered over with manure or any close covering. We should remember that the work of the plant is not finished when its leaves die, or is killed back by the first slight frost. It still lives and breathes, and therefore should be allowed to have a chance to finish its season's work before it is wrapped up and smothered.

Never cover the plants until the regular hard frost has taken hold upon the soil, and just before the snow falls; indeed, I would rather cover after the first snow comes than before if the ground is not frozen.

In spring as soon as the snow is off the ground, this covering should be lifted off and shaken loose in the same place over the plants to give the atmosphere a chance to get in at the plants and the plants a chance to breathe the new breath of spring. Long before many think it, the plants are beginning to look upward in hope of soon seeing the sun which gives life. After all danger from frost is over, take away clean the winter covering which you shook out a few days before. I am satisfied you will lose less plants then in any other way.—S. S. Bain, Montreal.

The loss of a few cherries by the robin is little more than an equivalent for his friendly, cheerful spring morning chirp, which is worth something. I will not hold up my hand for the robin's destruction until he becomes more numerous.—W. Armstrong, Queenston.

Making the Hardy Herbaceous Border

E. Byfield, Toronto

UNLIKE the transient bed of greenhouse plants, here to-day—gone to-morrow, the border of hardy perennials is a thing of permanency. As its name implies, there is nothing ephemeral, nothing transitory about it. The place it occupies is a reality, a solid reality, a lasting reality. Its life goes on from year to year, and its usefulness and satisfying fulness increases with the years. And because of this permanency, this long period of living, of growing, and of reaching forward to an ever fuller perfection, it is well to begin right, to lay foundations that will be sufficient to satisfy this permanent character of our hardy border.

All Kinds of Perennials Grouped for Best Effect

Plants, like all other living things, demand the fulfilment of certain conditions, and the success of the plant life is in direct proportion to the granting of these conditions. Most of our plants demand plenty of sunshine, fresh air, soil largely made up of plant food, and sufficient moisture to keep the plant at all times in a condition of freshness. Given these conditions, the plant is likely to do well; withhold them, and it will languish. These then are the essential things to be considered in choosing the location and in the making of the hardy border.

THE LOCATION

Where possible, choose a location offering an abundance of sunshine. If there is partial shade in some parts, this need not militate against the choice, as such space may be utilized with plants that get along well in, or require partial, shade. Where there is a choice of locations, however, one sunny, and the other shady, do not hesitate to choose the former. If the border runs east and west and can be flanked by a shrubbery on its north side, so much the better, as the green background adds largely to the effectiveness. A wall, or even a rough board fence, similarly situated, may, with a little ingenuity, be made to do duty in the same way by covering it with climbers or trailers.

THE SOIL AND ITS PREPARATION

Most of the perennial plants are gross feeders with insatiable appetites, and send their roots deep down into the earth. This is a fact that has to be reckoned with from the start, and the more seriously it is recognized beforehand the less will be the disappointment afterwards. And as the largest borders occupy but a comparatively small space it will be wise economy to make this part of the work thorough. Our plan is to take out the soil bodily from the trench to a depth of two feet, laying the top soil to one side and carting away the rest. The top soil is then put into the bottom of the trench, and the remainder filled with equal parts of vegetable mould, good clay loam, and well-rotted cow manure, the whole thoroughly mixed. In a stiff clay soil it will be necessary to afford drainage. A good way to do this is to dig the trench deeper, and before putting in the soil place several inches of loose stones in the bottom, placing on these a layer of straw or leaves to prevent the soil from clogging the spaces between the stones. If the soil is sandy or gravelly, no drainage is required.

SHAPE OF BORDER

The border may be of any width from three or four feet upwards. Avoid, if possible, a straight line front. A sweeping curved line is always more graceful and pleasing.

ARRANGEMENT OF PLANTS

It is in the arrangement of plants in the border that the real skill and taste of

Hardy Herbaceous Perennials Growing in the Gardens of Mr. Byfield

the designer becomes apparent. Two objects must be kept in mind, the harmonious arrangement of colors and the placing of plants so that there will be a continuous succession of bloom in all parts of the border, new plants coming into bloom as that of those beside them disappears. Also, the taller plants should, as a general rule, be placed towards the back of the border, though it would be well not to follow this rule too rigidly. Anything like rigid uniformity produces a stiff effect, and in every way possible this effect is to be avoided. Hence, plants of medium height should be placed among the taller ones, and occasionally a tall plant might come well to the front, while low carpeting plants should be throughout the whole as well as at the front edges.

COLOR EFFECTS

Too much care cannot be taken in placing the plants so as to produce a harmonious blending of color throughout the border. Colors that clash must not be placed in close proximity, and harmony rather than contrast must be the rule. Also, colors should be massed so as to produce a certain dignity, but the masses should not be so large as to become wearisome. A little study will suggest a progression of colors, each harmonizing with and running into those next. Colors should not be arranged in geometric patches, but should overlap, or run into each other, avoiding anything like formal grouping and sharp lines of cleavage.

The following hints are from Kelway's Manual of Horticulture, and are of special value to any one laying out a hardy border:

"A progression of color in a mixed border might begin with strong blues, light and dark, grouped with white and pale yellow, passing on to pink; then to rose color, crimson, and the strongest scarlet leading to orange and bright yellow. A paler yellow followed by white would distantly connect the warm colors with the lilacs and purples, and a colder white would combine them pleasantly with low-growing plants with cool-colored leaves."

Odd Hanging Baskets

Many high-roofed verandahs seem actually to demand hanging decorations of some sort to relieve long stretches of bareness; yet, owing to their elevated and exposed positions, plants growing in the pretty, open wire baskets sold for such purposes dry out so speedily that they are often worse than useless for decorative purposes. There is no more distressing floral decoration than a dried-out hanging basket; the phrase "hanging by the neck until he is dead," admirably suits it.

An odd hanging affair that is warranted not to dry out is made from an "elbow" of stovepipe painted green and suspended from the verandah roof by wires. During summer, petunias, nasturtiums, lobelia, tradescantia (which in real life is just wandering-jew) or oxalis, will all grow nicely from the open ends. I do not mean that all five should be planted in the same stovepipe. One kind to an elbow is all that is necessary.

Marketing Melons

W. G. Horne, Clarkson, Ont.

To realize good money for melons does not depend altogether on the quality. Often the inferior class of melon brings the fancy prices. Take for instance those shipped here from the United States. I saw, also, some of our own growing shipped last fall, by a neighbor of mine, that were simply rubbish alongside of good melons. The grower owned that they were no good, but as long as he could get fancy prices for them, which he was getting, he intended to ship them. The getting of good prices for such samples lies in there being a demand for melons and few to be had. Notwithstanding the getting of good prices for such inferior fruit, no one has any pride in shipping rubbish.

A man that has a good article to sell is proud of it. He is not afraid to meet the person he sold it to. He can give satisfaction in every way. To grow good fruit is pleasure. To sell good fruit is pleasure. To eat good fruit is pleasure. Adding the three together makes a three-fold pleasure, well worth our while trying to cultivate and bringing into effect. It is simply nothing more or less than a man's duty to do so.

Apples in Boxes

(Concluded from page 210)

It is often possible to pack a certain size more than one way, and have the box in each case look equally full and appear equally tight. It will usually be found that one of these ways will take a few less apples than the others. In such cases, choose the pack that will take the most apples. This is not advised for the sole purpose of giving the purchaser the full quantity of fruit, but to ensure good carrying qualities. If one style of pack takes 172 apples and another 176 of the same size, which is quite possible, it is certain that there is space unfilled in the box for four apples. This space in the case of skilful packing may be so evenly distributed throughout the box that the difference in the size of individual spaces between the different styles of pack will not be noticeable. If the fruit does not stay long in the box, all the styles of pack may come out in good condition. But if the conditions are not just favorable, and the fruit is subject to excessive evaporation and rough handling, the style with the most apples will stand up much longer than the other. After the apples have shrunk slightly, a very little shaking, such as would be experienced in passing over rough tracks or in shunting cars will cause the apples in boxes with the fewer specimens to adjust themselves into the spaces, and then the box becomes decidedly slack, and in due course wasty.

Greenhouse Lettuce

F. D. Ghent, Burlington, Ont.

We sow lettuce about September 15 in a small greenhouse heated with hot water. It is transplanted the first time as soon as the second leaf appears. Place about two and a half inches apart each way, and leave without any artificial heat until about December 15, when the furnace is started.

When large enough to move the second time, it is transplanted into a larger greenhouse, which is heated by two hot water boilers. Some is transplanted to cold frames. It is planted ten inches apart each way, and will be ready for market at Easter.

Blanching Celery

The oldest, and perhaps most common, method of blanching celery is that of throwing earth around the plants; but this method has been done away by most growers because it almost always causes considerable rust, while, also, worms and insects from the earth get into the stalks, spoiling them for market.

Darkness is all that is required in order for celery to blanch properly. It makes no difference whether this is caused by earthing, tying paper around the plants, or by setting up boards along the row, so long as the space around the plants is made dark. The plan of setting up a board along each side of the row is an excellent one, and is probably in the most universal use, where any considerable amount of celery is grown, because of the ease with which it may be performed.

Where only a few plants are to be blanched for family use, the plan of tying heavy wrapping paper around them is satisfactory. Another good plan is that of making tubes of cardboard and setting them over the plants when they are about a foot high, the tubes being about eight inches in length. As the plant grows, the tubes may be raised and a little earth drawn around the bottom of the plant. Two-inch tile drains are even better, however, for this purpose than the paper tubes and will last for many years.

Potato Diseases

Douglas Weir, B.S.A., Macdonald College

(*Continued from last issue*)

ANOTHER wet rot which caused considerable loss in the province of Quebec and was also reported from other parts of Canada, is the Bacterial Rot, caused by *Bacillus solanisaprus*.

Bacterial Rot

Infected tubers in section. (From Abdruck aus dem Centralblatt fur Bakteriologie, Band XVII, 1906)

According to Prof. F. C. Harrison, of the Macdonald College, Ste. Anne de Bellevue, (Abdruck aus dem Centralblatt fur Bakteriologie, Band XVII, 1906), this rot was observed as being destructive, in several districts, as far back as 1904. Since then, it appears to be increasing rather than decreasing, and suspected specimens received from the provinces of British Columbia, Manitoba, Ontario and New Brunswick, proved, upon examination, to be due to this organism. The leaves of the potato plant, at first, become yellowish and droop; later, black areas appear on the stems, extending until the leaves, or it may be the whole plant, topples over and dies. The tubers have a bruised appearance and the flesh is soft; finally the soft areas become black and emit an offensive odor.

Insects disseminate the disease by carrying the spores about on their bodies, and flying from diseased plants to healthy ones, they inoculate the latter in eating the foliage.

The remedial measures consist in collecting and destroying infected tubers, selecting healthy seed potatoes, storing at a temperature below 45° F., and controlling the fungus diseases of the potato.

LOSSES AND REMEDIES

When we endeavor to compute the loss to the country caused by insects and fungi in the potato field, we are confronted with most astounding facts. The actual marketable crop for Quebec and Ontario in recent years amounts to about 30,000,000 bushels per annum. In 1901, a good year, the yield was 37,000,000 bushels; but later years have been less favorable. Dr. Fletcher, the Dominion Entomologist, in his report for 1904 (Experimental Farms 1904, p. 223) says: "In Ontario there was a large yield, but considerable rot appeared, especially on heavy soil or on low land; the extent of the loss is variously estimated at from twenty to fifty per cent.," or in money to the extent of something over seven millions of dollars.

Professor Lochhead, of the Macdonald College, conservatively estimates the loss from the Colorado beetle alone at ten per cent. An absolutely accurate appraisement of loss is, of course, scarcely possible. But it is no rash deduction, that but for the scourges we have been describing, the crop of 30,000,000 to 37,000,000 bushels, might easily have reached 70,000,000 bushels.

Anyone can easily compute the actual loss in dollars to the country, and form a fair estimate of the probable loss from year to year resulting from the existence of these most virulent diseases in so necessary an article of food. The matter is clearly one of vast economic importance and demands the most earnest and intelligent action on the part of all concerned; upon the grower the responsibility probably lies heaviest, and upon him we would earnestly urge the adoption of the following remedial measures:

(1) The selection of seed from fields unaffected by diseases.

(2) The collection and destruction by fire of all infected tubers and plants.

(3) Regular, thorough and early spraying of the Bordeaux-Paris green mixtures.

The importance of this whole subject and the necessity of conducting further investigation by scientific methods, have led the Department of Biology in the Macdonald College to decide upon a thorough examination of these causes and remedies of potato infection. The results of these special researches will be duly published and circulated as widely as possible.

Bacterial Rot

Showing how the disease has completely severed the stem at point of inoculation. (From Abdruck aus dem Centralblatt fur Bakteriologie, Band XVII 1906)

Fall Work with Potatoes

W. A. Broughton, Sarnia, Ont.

As soon as potatoes are matured, they should be dug. Early varieties are usually sold at once. I have used a potato digger for eight years and could not now do without one. The Hoover digger is the best, as they can be used while the vines are green and heavy. In digging with this digger, 8 to 10 pickers are required. From 1,000 to 1,500 bushels can be harvested in one day if the crop is good.

The pits should be made in rows, one row for every 20 to 25 rows of potatoes, and about 60 or 70 feet apart in the row, so that the picker will not have far to carry the potatoes. The potatoes should be sorted when picked, the unsaleable ones being put into bags and carted off the field to be fed to hogs or otherwise disposed of.

Seed potatoes should be either pitted or stored in a cool cellar. The pits should be covered with straw with about three inches of earth on top. When wanted for market, the potatoes should be filled into bags with a potato scoop. If they are to be stored until spring, they should be put in pits; but, if they are wanted during winter, they should be put in a cool, dark, frost-proof cellar.

Vegetable plants should grow quickly and continuously.

An Establishment That Does Credit to Canada

MOST Canadians, who are interested in horticultural matters, have been accustomed so long to reading in United States publications about the immense size and the excellent management of United States nurseries that an impression prevails, with some at least, that it is desirable to purchase their stocks from the other side. That this is the case is evidenced by the fact that the number of trees and plants imported from the United States is estimated at over 500,000.

With the object of finding, at first hand, the status of some of our leading Canadian firms, a representative of THE CANADIAN HORTICULTURIST visited the Niagara District recently and, as a result of a day spent in the nurseries of Brown Brothers Company, Nurserymen, Limited, our pride in all things Canadian was considerably intensified. Without any desire to belittle the splendid nurseries in the United States, the visit makes it possible for us to say that we have in Canada as fine a nursery, although not as large as some across the border, as any on the continent, while its system of management is unsurpassed. Not only does this nursery hold its own with the United States firms, but, in common with some of our other nurseries, it possesses certain advantages, the importance of which can hardly be over-estimated. It is in a position to study the needs of growers at first hand, and to grow the kind of nursery stock that will meet them. The plants are acclimatized and thereby suited for growing in our climate and conditions. All nursery stock is fumigated according to law, but it is not subjected to a second fumigation, which often is injurious, as is stock purchased in the United States, it being required to be fumigated at the border. Canadian grown stock is best for Canadians. The representative of THE CANADIAN HORTICULTURIST who visited Browns' Nurseries saw unmistakable evidence of skill in growing, of close attention to the details of nursery management, and of much concern and anxiety in the matter of giving satisfaction to customers.

The offices and nurseries are located in Welland County. The post office is named after the firm, being called Browns' Nurseries. At this post office more mail matter is handled than at any other rural post office in Canada. This indicates the immense business that is done by this firm by correspondence.

A VARIETY OF SOILS

Browns' Nurseries were established in 1891. One hundred acres of land were chosen in an excellent location. The soil is of a desirable type. It induces trees and plants to produce an abundance of fibrous roots. The proprietors of these nurseries are alive to the fact that nursery trees constitute a crop which occupies the land for a number of years, and unless the land is in good heart when the trees are planted, there will be little opportunity to raise a good product. With fruit trees, usually the age of the tree determines its saleableness; hence, it is imperative that the growth within the given time be rapid and strong. The soil that comprises the original 100 acres and some 500 acres that have been acquired since—making in all 600 acres—is of the character that produces this result.

Entrance to Brown Brothers' Nurseries—Bordered with Half-Mile Rows of Cherry Trees

The whole 600 acres, comprising seven farms, are devoted to the growing of nursery stock. No fruit or farm crops are grown, except such of the latter as are necessary to rest land that has been "treed."

$100 AN ACRE FOR MANURE

Thousands of dollars are spent annually on ordinary stable manure. On every acre of land, $100 worth of manure, or practically manure equal to the value of the land, is applied before the trees are planted. This is an immense outlay. That it is worth while is evidenced by the health and vigor of the stock that Browns' Nurseries produce.

Within the broad area of these nurseries, there is a great variety of soils. Nursery stock of all kinds can be planted in the soil best suited for its production. Land that is not sufficiently strong for the growing of fruit trees, can be used successfully for the growing of ornamentals, as their value is determined by the size of the specimen, with little reference to age. Thousands of first-class ornamentals were to be seen in all stages of growth.

WELL-APPOINTED OFFICES

To superintend the care and management of this great nursery, the residences of the president of the company, Mr. Edward C. Morris, and of the secretary-treasurer, Mr. David Z. Morris, are located on the home nursery. This enables the Messrs. Morris to keep in close touch with all the details of their immense business. The extensive and well-equipped offices also are situated at the central nurseries. The building is sixty by thirty feet, two stories high, with interior appointments in accord with the needs of an establishment that is up-to-date and progressive. The office conveniences are equal to the best in large cities.

The business of the firm has increased so rapidly that it has been found necessary to increase the office room twice. The original office was a small room, twelve by fifteen feet. The next one was twenty by thirty. This furnished accommodation for only a short time. The present commodious structure was then erected.

Having the main office located at the central nurseries is an advantage in many ways. Mail orders can be given prompt and careful attention, and the true condition of the stock available for sale can be ascertained readily. Prompt attention and quick dispatch can be

given orders received by long distance telephone. In order to handle all orders with promptness, Brown Brothers Company had the post office of Browns' Nurseries established. It has proven to be a great convenience to the firm as well as to farmers in the neighborhood.

So many hands are employed, it was found necessary to erect two boarding houses on the home nursery, one for those engaged in the offices and the other for nursery hands. Both are large, commodious, and fitted with all modern conveniences.

Surrounding the office is an acre and a half of fine lawn, on which shrubs and ornamental trees have been planted. This lawn is to be increased in area as circumstances demand. Although laid out and planted only four years ago, the grounds are fast assuming the appearance of a beautiful park. The offices and buildings are approached from the highway by an avenue of Montmorency cherry trees over half a mile long which, in the springtime at blooming and in midsummer when the fruit is ripe, present pictures that are suggestive of the good things that may be expected from the young trees in the nursery grounds on either side. The buildings crown an eminence from which may be viewed scenery that can scarcely be excelled in any other part of Canada. Visitors to Browns' Nurseries will be well repaid in the enjoyment of the scenery alone. An additional pleasure that is afforded, however, to say nothing of the practical aspect of viewing the nurseries themselves, is the hospitality of Messrs. Morris. The representative of THE CANADIAN HORTICULTURIST who visited the nurseries on this occasion was kindly driven about from place to place and entertained by Mr. E. C. Morris. Nothing is lacking in the courtesy extended by the firm to visitors.

THE FRUIT NURSERIES

In the course of our observations, one field was noticed that contained over 600,000 apple trees, saleable this fall. The trees were well grown and gave evidence that the various operations to which they had been subjected by the nurserymen had been properly performed. They were stocky and well-grown. "We intend," said Mr. Morris, "to head our trees lower in the future than has been the custom. There is no reason why the head of a fruit tree should be out of reach of the worker. Low-headed trees save labor and expense at spraying and pruning time. They will stand storm and wind better than those that are high. They shade the ground and thereby help to conserve soil moisture. The greatest advantage of all, however, and one that outweighs all the good features claimed for a high head, is that the fruit can be picked from the ground, no ladders, or short ones at most, being required for the purpose." This question is one well worth consideration on the part of nurserymen and fruit growers everywhere. Expressions of opinion are invited for publication. It would seem that the growing scarcity of orchard labor would warn growers against the old practice of heading newly-set trees too high. Let us hear from our readers on the subject.

All kinds of fruit trees that can be grown in Canada are produced on these nurseries. In apples alone, 125 varieties are grown. All the standard sorts are grown and many new ones are under test. Brown Brothers Company are quick to try new varieties and to develop those that prove worth while. The firm has introduced many new things in fruit varieties and ornamentals that are of much value to our growers, for profit or ornament as the case may be.

Some excellent blocks of young peach trees were seen. In their propagation, the usual custom of layering or stratifying the pits is not practised. They are sown directly in the rows where the trees are to grow. This practice usually is thought to be not good, as often a portion of the seedlings do not grow and, as a result, regularity cannot be attained in the rows. That the operation is successful with Brown Brothers Company, however, is evidenced by the even stand that results. In the budding of peach seedlings, as well as in the propagation of all kinds of nursery stock, great care is taken in the matter of propagating true to name. Brown Brothers Company pride themselves on filling the orders of customers with stock that is true to variety type and name. No substitution is practised without the consent of the purchaser.

One block of 30,000 dwarf Duchess pear trees were particularly deserving of mention. They were the finest that ever have come under our observation. The entire lot was as even as trees can be grown. The trees were strong and vigorous. This firm is the largest growers of dwarf pear trees in Canada. Some excellent cherry trees, saleable this fall, were noticed, particularly a fine block of Montmorencys. In peaches, plums, cherries, pears and all kinds of fruits, all the leading varieties that are adapted to Canadian conditions and climate are grown.

GRAPES AND SMALL FRUITS

Large quantities of grapes, currants, gooseberries, raspberries, blackberries, and so forth, are propagated. Thousands of these fruits were seen growing on land best suited to their requirements and care. The young grape vines were in first-class shape.

Young Hydrangeas Growing on Brown's Nurseries—Offices in Background

A new feature in the nursery was a patch of some 20,000 plants of the Herbert raspberry. This is a variety but little known to growers, and one that deserves a place, and a big place, in commercial plantations. "I believe that the Herbert is the best money-making raspberry that we have," said Mr. Morris. The representative of THE CANADIAN HORTICULTURIST saw a patch of them in fruiting at Brown Brothers' and has seen them growing elsewhere in Ontario. From observing their behaviour at various places during the past five years, the writer does not hesitate to confirm Mr. Morris' opinion. The berry is of the largest size, bright red, of good body, excellent quality and the bush is very productive. Its hardiness makes it especially valuable in the colder parts of the country.

ORNAMENTAL TREES AND SHRUBS

If there is one class of stock that receives special attention at Browns' Nurseries, it is ornamental trees, shrubs and vines. This firm is the largest growers of roses and clematis in Canada. Over 75,000 field grown roses

are propagated each year. Some excellent moss roses were seen. The variety that attracted our attention most, however, was the Baby Rambler, which was imported from France by Brown Brothers Company, and introduced by them to the growers of Canada. The plants were to be seen at various ages; the young ones were well grown; the ones in bloom presented a beautiful sight. This rose is rapidly becoming a favorite, as it is a free and lasting bloomer, and blooms from early summer until the snow comes in late fall. Large quantities are grown at these nurseries. About 20,000 plants of clematis are produced, half of which is *Clematis paniculata*. This species is hardy and rapid growing, often growing about fifteen feet in one season. The foliage is a deep, clear green, and the flowers pure white.

In lilacs, all the choicest varieties that can be found in the leading arboretums of America have been procured for propagation. Some forty varieties are on hand growing on their own roots, and trained to single stems instead of the bush form. When grown on privet roots, they are said to be more likely to sucker. Scores of other kinds of shrubs are grown in quantity, such as altheas, honeysuckles, dogwoods, weigelias, flowering almonds, mock oranges and so forth. For propagating the best sorts, cold frames are used.

Ornamental and shade trees are grown by the thousands. "There is an ever-increasing demand for trees for city streets and home grounds," remarked Mr. Morris. "Nearly every city, town and village has its horticultural society that encourage the planting of ornamental trees for beauty and comfort. They have done much to stimulate a desire for the products of the nursery." One of the finest of the trees to be seen was the Norway maple; about 10,000 were observed in a strong, healthy condition. It is hardy and especially adapted to planting by the seashore. Among other kinds were box elder (*Negundo aceroides*, Manitoba maple), many species of maple, elm, birch, beech, oak, poplar, catalpa, willow, ash, and so forth.

All kinds of hedge plants also are handled. According to the experience of the firm, *Berberis Thunbergii*, a shrub similar to tree box, is supplanting most other kinds, such as privet, thorns and evergreens for making hedges. It is prized particularly for its gorgeous color of foliage in fall; the berries are bright red.

EVERGREENS

Conifers, or what are ordinarily termed "evergreens," form a distinct feature in Canadian gardens; some species are to be found almost everywhere. Brown Brothers Company grow large quantities. Before offering them for sale, they are transplanted twice, so that an abundance of fibrous roots will be produced. When preparing evergreens for shipment, the roots are imbedded in moss, and the whole is wrapped with burlap to prevent them being dried out and thereby injured. Large numbers of evergreens are imported from Holland. They arrive with the roots in a ball of earth; thus, they are suitable for planting for immediate effect.

HIGH-CLASS PERENNIALS

The fundamental feature of gardens, particularly those of amateurs, is the perennial border. The class of plants to be found in such are hardy, durable, beautiful and, at the same time, inexpensive. There is a charm about old-fashioned herbaceous plants all their own. Perennials are grown extensively at Browns' Nurseries. "The demand for this class of plants is growing rapidly," said Mr. Morris. "The demand is enormous. Canadians seem to be going back to the gardens of the old time. They are planting more and more each year the plants that their grandmothers grew, such as bleeding heart, iris, phlox, Canterbury bells, peony, lily-of-the-valley, pinks, and scores of others."

Perennials constitute the backbone of all well-planned gardens. Peonies in particular are becoming great favorites. The collection of new peonies to be seen growing at these nurseries, embraces the choicest varieties, running through all the favorite shades of pink, crimson, yellow and so forth. In hollyhocks, there is on hand a large assortment of the most exquisite shades imaginable.

INDOOR PROPAGATION

To aid in the propagation of the best class of ornamentals, eight greenhouses are employed, with expert propagators in charge. Thousands of roses and clematis are started in these houses, including Baby Ramblers. Some 10,000 hydrangeas are propagated indoors. Many of the better varieties of grapes, particularly those with wood naturally light, also are started under glass.

In addition to operations incidental to the propagation of nursery stock, the greenhouses are used for the production of bloom for the Toronto market. About 20,000 carnations and 3,000 plants of chrysanthemums are grown for this purpose, and one house is devoted to violets. Bedding plants also are grown in large numbers.

LANDSCAPE ARCHITECTURE

In the planning of ornamental grounds amateurs sometimes are at a loss to know what to do. They may know what they want, but many do not know how to produce the desired result. To aid those who desire assistance, Brown Brothers Company furnish plans and estimate the cost. The plans are drawn to scale. The positions of trees and plants suitable to the occasion are indicated by number. This feature of the firm's business has been welcomed by many home-makers in all parts of Canada.

VEGETABLE TUBERS AND ROOTS

A profitable vegetable to grow for market is asparagus. To meet the demand of growers for extra early and extra large kinds, countless roots are grown on these nurseries. That they are popular is evidenced by many testimonials from satisfied customers. Thousands of rhubarb roots also are grown. About eight varieties of potatoes are grown to the extent of about 3,000 bushels of seed tubers a year. These are disposed of mostly in small orders.

HOW THE STOCK IS WINTERED

For filling orders early in spring, and to protect the stock in winter, storage cellars are used. In the early years of the company's existence a small storage cellar, twelve by thirty feet, sufficed to winter over the stock. In a few years a larger one, 40 by 112 feet, was erected. By 1903, this also fell short of the company's requirements, and a large brick, frost-proof storage cellar, 100 x 160 feet, was built, in which to handle the different kinds of larger nursery stock. On being shown through this fine building and noting the great precautions that are taken to ensure the preservation of the stock in the very best condition, the representative of THE CANADIAN HORTICULTURIST felt that Brown Brothers Company are justified in claiming, as they do, that probably they have the best storage building for nursery stock on the continent.

The structure seems to be perfect in every detail. It is absolutely frost-proof, and the ventilation is such that the air can be kept clean and pure at all times. A driveway runs through the building, and the entrances are provided with double doors, which may be bolted and made air-tight if necessary. The temperature can be held at any point desired, and its control, as well as that of the atmospheric condition within the walls, is such that trees can be kept there in a most healthy and thrifty state for many months when necessary. As a further safeguard against loss of stock, the building is supplied with an efficient water system. If on examination the stock shows any signs of becoming dry, it is an easy matter to water it thoroughly and quickly.

Direct sunlight has an ill effect on nursery stock. This, however, is amply guarded against in this building. All the skylights face the north, and are covered with two thicknesses of glass, the outer one being extra heavy ribbed green skylight glass to soften the light.

The small nursery stock, and all imported lines, such as seedlings, evergreens and shrubs, are stored in the old building, which is also frost-proof. This building holds about 1,000,000 small stocks, packed in moss, while the new one will hold some 500,000 large trees, in addition to which there is room in each building for packing.

All packing is done under cover, so that the young trees are not exposed to sun and wind. This modern method has superseded the old one of heeling in outside, and digging as needed, leaving the trees for hours exposed to the sun and wind before the packers get them into the boxes. With the present conveniences and accommodations, packing can be commenced in late winter, and shipments made as soon as spring opens, thus giving the purchaser the advantage of an early delivery. Brown Brothers Company was the first in Canada to use female help in packing and handling nursery stock. Women and girls are used also in the field for "sprouting" and hoeing. During the busy season the total number of hands employed is 125.

TRANSPORTATION FACILITIES

To handle the large number of orders filled each year, a gang of men is kept busy all winter making boxes for shipping. About 300,000 feet of lumber are used for the purpose. For shipping purposes, a private railway spur, three miles long, runs from the T.H. & B. railway, to a point one mile from the packing sheds. The firm thereby is enabled to fill orders and ship them on the shortest notice. This siding gives direct connection with the M.C.R. at Welland, the C.P.R. and G.T.R. at Hamilton.

During the shipping seasons, carload after carload is shipped to the western provinces, to Quebec, to the Maritime Provinces, and to all points in Ontario. Stock from these nurseries finds its way into every township in Canada. Every care is taken by the firm to see that all stock packed and sold is of the highest grade and quality. Brown Brothers Company, Nurserymen, Limited, have an horticultural establishment that is a credit to Canada.

OUR QUESTION AND ANSWER DEPARTMENT

Readers of The Horticulturist are Invited to Submit Questions on any Phase of Horticultural Work

Rose Pot-Pourri

Will you kindly give me a recipe for preserving rose leaves?—C.B.M., St. Catharines, Ont.

Gather one peck of sweet-scented rose leaves and spread on blotting paper in the sun. Sprinkle them with a pint of salt. Turn them each day while they are drying. If you can obtain them, add carnations, lemon verbenas, and, indeed, any sweet-scented thing. When all are dry, put them in a jar and add one ounce each of clove, nutmeg, tonka beans, coriander seed and orris root. Add a little bergamot. Pour on this mixture an ounce of alcohol and a few drops of essence of rose and lavender. Let the mixture rest in the jar one week, during which time stir several times; then put it in the rose jars.

Dahlias Changing Color

Why do dahlias change color? Last year, mine were pink and this year they are white and purple, and the flowers are not nearly as good in quality.—M. R., Toronto.

The flowers of dahlias and many other plants often change or vary their color and markings in the manner mentioned. It is usually caused by an excess of, or sometimes from a lack of, certain chemical compounds in the soil that affects coloration, and sometimes from a natural reversion of type. Changing the soil and other conditions will often affect the plants beneficially, and restore them to their original character.—Answered by Wm. Hunt, O.A.C., Guelph.

Begonias From Seed

Can tuberous begonias be propagated by seed?—L. N., Amherst, N.S.

Tuberous begonias may be propagated either from seed or from tubers. The seeds are very small. They should be sown by simply sprinkling on the surface of the soil, which is best composed of leaf mold and sand. If possible, water the seeds from the bottom by setting the pots or box in water. When the soil is well saturated remove to a shady place. Do not allow the soil to become dry.

When the seedlings are large enough to handle, transplant them by setting the plants down to the seed leaves. Tuberous begonia seedlings should be transplanted three or four times before they reach the blooming period, and at each transplanting increase the amount of fibrous matter in the soil. The addition of a little well-rotted manure may be made at the last transplanting.

Building a Greenhouse

I wish to build greenhouses for growing vegetables and flowers. At first, three rows will be built, 20 feet wide, each by 50 or 75 feet long, even span, with ventilators north and south of ridge. At one end will be the boiler and workroom. I wish to build so that the houses can be enlarged conveniently when necessary. Which is best for heating, hot water or steam? I have been advised to use boiler tubes, three-inch size for the hot water. Do you consider them satisfactory or not? Do you know of any houses in the vicinity of Toronto heated by them that I could visit? Would a threshing engine boiler be as economical as any other?—W.S.P., Newmarket, Ont.

In a small range of glass with short runs by all means use hot water, as it is most satisfactory and does not need the attention steam does. By building your boiler and workroom at the north-east or north-west corner of your houses, you can double your range of glass at any time, and still not have to force your water any farther than you will with your present plans. Boiler tubes are used in some places. I do not know of any place near Toronto using them. They are not as satisfactory as two-inch pipe would be. A threshing engine boiler could be used, but would not be as economical as a heater built for the purpose.—Answered by A. McMeans, O.A.C., Guelph.

For Fall Sowing

Will you name the best varieties of lettuce and radish for sowing in early September?—P.S.A., Perth, Ont.

For fall use, out of doors, Grand Rapids Lettuce is one of the best; for cold frame culture, use Tennis Ball. For radish, a good strain of Scarlet Turnip White Tip or Scarlet Turnip will do best.

I would strongly advise all owners of vineyards to spray their vines two or three times a year with the Bordeaux mixture. It not only prevents disease and fungous growth, but gives the vines a healthy appearance, and makes the fruit clean, bright and nice.—Aaron Cole, St. Catharines, Ont.

The Canadian Horticulturist

Published by The Horticultural Publishing Company, Limited

The Only Horticultural Magazine in the Dominion

Official Organ of British Columbia, Ontario, Quebec and Prince Edward Island Fruit Growers' Associations and of the Ontario Vegetable Growers' Association

H. Bronson Cowan,
Managing Editor and Business Manager
A. B. Cutting, B.S.A., Horticultural Editor
W G. Rook, Advertising Manager
Garrett Wall, Circulation Manager

1. The Canadian Horticulturist is published on the 25th day of the month preceding date of issue.

2. Subscription Price in Canada and Great Britain 50 cents a year, three years $1.20. For United States and local subscriptions in Toronto, 25c. extra a year is charged for postage Foreign subscriptions, $1.00 a year, including postage.

3. Remittances should be made by Post Office or Money Express Order, or Registered Letter. Postage Stamps accepted for amounts less than $1.00.

4. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

5. Advertising Rates quoted on application. Copy received up to the 18th. Responsible representatives wanted in towns and cities.

6. Articles and Illustrations for publication will be thankfully received by the editor.

Circulation Statement

Since the subscription price of The Canadian Horticulturist was reduced from $1.00 to 50 cents a year, the circulation has grown rapidly. The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with July, 1907. The figures given are exclusive of sample and spoiled copies and of papers sent to advertisers. Some months, including the sample copies, from 8,000 to 10,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruit, flowers or vegetables.

August,	1906	4,220
September	1906	4,300
October,	1906	4,330
November	1906	4,775
December	1906	4,814
January	1907	4,947
February	1907	5,520
March	1907	6,380
April	1907	6,460
May	1907	6,620
June	1907	6,780
July	1907	6,920
Total for the year		66,066
Average each issue		5,505
August, 1907		6,880

worn detailed statements will be mailed upon apcation.

Our Protective Policy

We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason to believe that any of our advertisers are unreliable, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant we will expose them through the columns of the paper. Thus, we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefits of this Protective Policy is that you include in all your letters to advertisers the words "I saw your ad. in The Canadian Horticulturist." Complaints should be sent to us as soon as possible after reason for dissatisfaction has been found.

Communications should be addressed:

THE CANADIAN HORTICULTURIST,
506-7-8 Manning Chambers,
TORONTO, CANADA

EDITORIAL

THE DOMINION CONFERENCE

From the number of letters that have been received at the office of The Canadian Horticulturist respecting the holding of another Dominion Fruit Conference in 1908, it is evident that our leading and most representative fruit growers are anxious that such should take place. While much was done at the last conference, the entire programme that was mapped out has not been fulfilled, and besides there were many questions that did not receive consideration owing partly to the limited time of the convention. Since then, also, new questions of a national character have arisen that should be attended to at once if their solutions are to be of value to the fruit industry of the Dominion.

It would seem that the Hon. Mr Fisher should sanction the holding of a conference next winter. The cost of same is a mere bagatelle. The last one cost only $2,000. When the fact is considered that the provincial government of Ontario gives a grant of $1.800 each year to the Ontario Fruit Growers' Association, a local organization, surely the Dominion Government can give $2,000 every two years to further the interests of fruit growers in all the provinces. It is to be hoped that an early announcement of a conference for 1908 will be made.

SELLING APPLES BY WEIGHT

Mr. J. B. Jackson, Canadian Commercial Agent, Leeds, reports that the Hull and District Fruit Buyers' Association at their June meeting passed the following resolution:

"That all fruits, nuts and vegetables, generally sold retail by weight, shall also be sold by brokers, merchants, and importers on the Hull market by actual declared net weights only."

Mr. Jackson says that it is expected that within two years this system of "declared net weights" will become general throughout the kingdom.

This system of selling by weight appeals to our sense of fairness inasmuch as nine-tenths of the fruit is sold ultimately by weight. Nevertheless, there are many objections to insisting upon the weights being placed upon the barrels. As a matter of fact the dealers who buy at auction in Great Britain estimate with very great accuracy the weight of fruit in the barrels. This they are able to do because there is no attempt upon the part of Canadian buyers to misrepresent the weight of fruit in the barrels. The difficulty arises when they would be asked to state definitely what the exact weight is, and this difficulty is so great that we need not expect it in the near future. The apple operators who do the larger part of the Canadian apple business could not easily devise any scheme for placing the exact weight of the contents in each barrel on the outside. During the early part of the season the packing is done in the open orchard, where exact weighing is out of the question. The difficulty of getting cars and the rush of sending the fruit when the cars are obtained render it almost impossible to weigh the fruit at the station.

Although the barrels are nearly all uniform in size, there are differences of condition and material that would make it impossible to put an estimated weight upon the barrel at this end of the journey. A barrel that is slightly wet will weigh more in the gross than one that is dry, although the net weight of fruit may be exactly the same. If a barrel is made of elm staves it will weigh somewhat different from what it would if made of spruce staves; and every variety of apple has a different weight per barrel. It frequently happens that the man who attends to the shipping of the cars is by no means an expert in apples and, therefore, would not be so competent to judge of the weight as the man who buys.

It can be readily understood that it would be a difficult matter to get the dealers on this side to mark weights on their barrels. The cooperative associations, from their system of working, could do it more easily. To this must be added the fact that the English buyers have no real grievance. No one is trying to deceive them.

PRINCE EDWARD ISLAND METHODS

The fruit growers of Prince Edward Island are making good progress in the production of high grade fruit for home consumption and export. It is evident, however, from the observations of Mr. Alex. McNeill, Chief, Fruit Division, Ottawa, as recorded in an article on another page, that the Islanders are making some mistakes that are patent to every one acquainted with the best methods of growers in other provinces.

One of the defects in Island methods is the practice of allowing trees to be choked from the start with grass and weeds; indeed, in this respect, there appears to be but few orchards on the Island that have anything like a fair chance. More trees are ruined every year by want of clean culture than from any other cause. When the Islanders give their trees the same intelligent care that they give their potatoes and their corn, orcharding will flourish.

A second mistake is the practice of making the heads too high. The strong winds on the Island and the climate generally, make it absolutely necessary that every device should be used to protect the fruit as well as the trees themselves. Unfortunately, the idea prevails that a tree cannot be kept free of grass unless the limbs are started at a height of five or six feet. If the growers would keep the trees clean, after making this preparation for it, there would be some excuse for them, but few of them do. Up-to-date orchardists know that a limb can be started at a height of two feet or thirty inches, and yet offer no obstruction to cultivation. When those growers, who do not give proper attention to their orchards, observe these defects and others mentioned in Mr. McNeill's article, and remedy them, the fruit industry of Prince Edward Island should develop rapidly.

AN IMPORTANT ANNUAL EVENT

When the Ontario Horticultural Exhibition was first proposed, some five years ago, there were many who predicted that it could not be made a success. It was claimed that the expenses would be very heavy and the interest taken in the event but slight. The argument was made, also, that our horticultural industries were of such small importance as compared with our other agricultural pursuits, that they did not warrant the making of an effort to hold such an exhibition.

Three exhibitions have been held. Each has surpassed its predecessors in the total number of entries made, in the general interest manifest, and in point of attendance. The fourth exhibition will be held in Massey Hall, Toronto, next November. Judging from the interest apparent already, it promises to far surpass the three former exhibitions on all the points mentioned.

At the first exhibition the fruit packed in boxes and barrels, that was exhibited, was for the most part a disgrace to the province. It showed that most of those fruit growers who were supposed to be experts, knew but little in regard to the packing of fruit. The exhibit was so disappointing, Hon. John Dryden, the then Minister of Agriculture, proposed publicly that his department should import experts from California to give the Ontario growers lessons in packing.

What is the situation now? At the last

exhibition, only two years later, there were almost five times as many entries of packed fruit, and there was scarcely a poorly packed box or barrel in the exhibition. The improvement manifest was wonderful, and alone justified every expenditure the Ontario Department of Agriculture has made to date in connection with the exhibition.

Since the first exhibition was held, the Ontario Vegetable Growers' and the Ontario Horticultural Associations have been formed and now hold their annual conventions at the time of the exhibition. These conventions, together with those held by the Ontario Fruit Growers' and Bee Keepers' Associations, have had the effect of making the exhibition the one big event of the year for those interested in the horticultural development of the province; we might say, of Canada.

No better evidence of the important position the exhibition now occupies need be cited than is afforded by the changed attitude in regard to it of the great railway companies. For the two first exhibitions, the best arrangements they would make for attendance from points outside of Toronto, was on the troublesome certificate plan. This year, as was done last year, they will run half-rate excursions from all parts of Ontario on the two principal days of the exhibition, and will give half rates, on the certificate plans, throughout the rest of the week. In addition, they will advertise these excursions in the local press of the province at their own expense.

The rapid development of the Ontario Horticultural Exhibition is gratifying, because it proves the importance of our horticultural interests and the splendid progress they are making. It advertises our horticultural products as nothing else could. Already it is the best annual exhibition of the kind held on the continent. In time it will become as well known as the Royal Horticultural Exhibition held in London, England.

THIS ISSUE MAKES NEW RECORDS

This number of THE CANADIAN HORTICULTURIST is exceptional in several respects. It is the largest issue that has ever been printed. It will be mailed to more paid subscribers than any other number since the present management assumed control. The value of the advertisements carried surpasses all records. With this number, also, we commence the publication of a sworn circulation statement which is given elsewhere on this page. This statement shows the wonderful growth that has taken place in the subscription list of THE CANADIAN HORTICULTURIST during the past year.

There is nothing of the mushroom character connected with this new circulation. It has been secured mainly because of the drop in our subscription price and through our premium offers, advertisements in other papers and by means of agents. It is a circulation that will stick. The management confidently expects that the paid circulation of THE CANADIAN HORTICULTURIST, within a few months, will reach the 8,000 mark, and that the average for next year will be considerably in excess of that figure.

The growth in our advertising patronage has grown in proportion. This growth has forced us to enlarge THE CANADIAN HORTICULTURIST several times this year to prevent our reading columns being encroached upon unduly. This has been done at heavy expense. We now have reached the point where we must either enlarge THE CANADIAN HORTICULTURIST permanently or advance our advertising rates. Were the former course to be pursued, the expense of publication would be increased so greatly it would force us to advance our subscription rates. This we are not prepared to do. It has been decided, therefore, to advance our advertising rates on and after the first of next November. This action, we feel, is more than justified by the great increase that has taken place in our circulation. Until that date we will continue to accept advertising contracts at our present rates. Contracts now in force, and that may be signed during the next two months, which run on for one or more issues after November first, will not be affected by this advance in rates.

Our readers, we believe, will join in our feeling of pride in the progress that has been made. It is only one more evidence of the great development that is taking place in all lines of business in Canada from one end of the Dominion to the other. Soon, we hope to be able to introduce several more improvements in the paper, and to make it the peer of any other horticultural publication in the world.

We would direct the attention of horticulturists and their sons to the courses in horticulture that may be taken in the agricultural colleges of Canada. Guelph, Truro, Winnipeg, Ste. Anne de Bellevue and two or three smaller colleges or schools teach horticulture. These courses should be taken advantage of by fruit growers' sons in particular. No matter how well experienced a young man is in the matter of growing fruits, vegetables, or ornamental plants, he can gain much valuable information at these institutions. A practical horticulturist cannot be well informed without a fair knowledge of theory as well as practice. We would advise young horticulturists to take advantage of a course in the agricultural college of his province. These courses commence in September. To secure the full advantages, immediate application should be made for admission to the secretary or president of the chosen college.

The fruit growers of the Niagara District will do well to patronize the St. Catharines Horticultural Exhibiton this month in every way in their power. The more the horticultural products of the district can be advertised the better it is for the district. The exhibition is held at a time when exhibits can be made to the best advantage. Such exhibitions draw attention to the fruit possibilities of the district, they attract fruit buyers, and they help to induce people to buy land and take up fruit growing. The residents of the Niagara District should rally around this exhibition and help to make it an even greater success than its promoters expect.

We are pleased to note, by circular just received, that a short course in fruit growing is to be given this winter at the Ontario Agricultural College, Guelph. This is a move in the right direction, and one that should be welcomed by those fruit growers of Ontario who cannot afford the time to undertake a regular course of study. As Professor Hutt will be assisted by such men as Mr. Alex. McNeill, Chief, Fruit Division, Ottawa; Mr. W. T. Macoun, Horticulturist, Central Experimental Farm, Ottawa; Mr. A. E. Sherrington, President of the Coöperative Fruit Growers of Ontario; and Mr. H. S. Peart, Director of the Ontario Horticultural Experiment Station, the course should be a valuable one.

THE CANADIAN HORTICULTURIST has received some letters from fruit growers, asking us why we do not devote more space to articles dealing with the question of heading trees low. As this is a subject of much interest and importance, our readers are invited to give their views. Letters on either low heading or high heading of trees, with the reason why one is preferred more than the other, would be read with much interest by the readers of THE CANADIAN HORTICULTURIST.

Cooperative Growers Meet

A meeting of the directors of the Cooperative Fruit Growers of Ontario was held in Toronto on August 15. Among the resolutions passed was one dealing with a means of assisting associations that require such services in the disposal of their fruit. The secretary was instructed to ask the local associations for the names of all buyers or firms who send them orders that they cannot fill. The local associations are also required, as usual, to furnish the secretary with information regarding the quantity and kinds of fruits that they have for sale, so that the same may be communicated to responsible buyers. The executive decided, also, to appoint a man or firm to act as selling agent for any associations that desire to dispose of their fruit in that way.

A resolution was passed, also, instructing the secretary to communicate with one firm in each of the following cities: Winnipeg, Brandon, Regina, Calgary, and Edmonton, with a view to making arrangements with them to receive cars or smaller consignments that the associations, for some reason or other, may desire diverted; that is, should any association ship a car to any point in the west, and circumstances arise when it is in transit that make it necessary for the original order to be cancelled, such may be sent to one of the firms mentioned who would sell same to the best advantage.

A Novel Feature

At a meeting of the directors of the Ontario Horticultural Exhibition, held recently, it was proposed to introduce a novel feature at the exhibition next November in the form of a hanging garden, which will be suspended from the roof of Massey Hall. This garden will be lavishly decorated with flowers and, hidden in the foliage, will be singing birds and other attractive features.

Arrangements are being made with the railways for the running of half-rate excursions from all parts of the province, as was done last year. Several thousand people from out of Toronto attended the last exhibition, and it is expected that the attendance this year will be much larger. Huron County Council, as well as a number of others, have made liberal grants to encourage the making of representative exhibits of fruits from their respective counties at the next exhibition. The Ontario Agricultural College, Guelph, will have a special educational exhibit of injurious and beneficial insects. Arrangements are being made, also, for an unusually attractive musical programme.

The 10th annual convention of the Canadian Horticultural Association was held in London on August 28 and 29.

The August meeting and flower show of the Ottawa Horticultural Society was marked by distinctive features of excellence, chief of which was a lecture by Mr. Alex. McNeill, Chief of the Fruit Division, Ottawa, who in a most entertaining manner described how the usually unsightly city back-yard may be easily transformed into a bower of beauty.

The Deming Company, of Salem, Ohio, manufactures all kinds of modern spraying apparatus, pumps, nozzels and attachments for the orchard, field, vineyard and garden. It is a well-known fact that fruit growers who have bought spraying machines and sprayed regularly and intelligently have the best and finest crops of fruit. The machines manufactured by The Deming Company are easily operated and cared for because they are simple in construction, well made, and will stand lots of wear and hard work. Canadian growers who want to own a machine that will do what is expected of it should consult the advertisement on the inside back cover and write immediately to The Deming Company for further information.

Vegetable Crops Need Rain

THE general outlook for vegetable crops in Ontario is not encouraging, report the crop correspondents of the Ontario Vegetable Growers' Association. All crops have suffered for want of rain during the past few weeks, and some have received a setback from cold nights and the ravages of slugs and cutworms. The Ottawa district is the only one that reports favorably; in that locality, large crops of cabbage and celery are expected; potatoes there will be a good crop and of excellent quality.

In general, the potato yield is expected to be only half a crop. Beets, carrots and turnips will give fair to good crops, while parsnips will be below the average. Early and medium cabbages are not plentiful, in some localities they are scarce. If rain comes, late cabbage and cauliflowers will be all right. The celery crop will not be large, and the stocks somewhat small. The onion crop will be much below average. In the Scotland district, Brant County, where onions are grown extensively, they have made rapid growth, but mildew has appeared and will materially affect the yield. Sweet corn will be fair. Melons will yield a good crop. The tomato crop will be very light. Growers probably will not grow as large an acreage of tomatoes next year.

LAMBTON COUNTY

Sarnia.—Owing to drought, the outlook for late cabbage and cauliflowers is not so good as it was at the first of the season. Tomatoes are a good crop. Early potatoes are about a three-quarters crop. Late potatoes were badly hurt by frost, and will only be half a crop. Seed onions will be an average crop. Sweet corn is a good crop. Beets, carrots, squash and melons are looking well, but need moisture.—W. A. Broughton.

ESSEX COUNTY

Leamington.—Early tomatoes are all gone. The crop was small considering the acreage. They sold at 30 cts. per 11 quart basket, with large lots going at 25 cts. Some growers shipped to the large markets at 18 to 25 cts. Their net returns after express and commission charges were paid amounted at the most to 5 or 6 cts. Early potatoes are a poor crop; late may be better. Peppers are in good supply and selling at 40 cts. a basket. Muskmelons are ripening and selling at 75 cts. a basket. Rocky Fords are selling at $1, eleven quart basket.—E. E. Adams.

WELLAND COUNTY

Niagara Falls South.—Effect of dry weather is noticeable. Medium cabbage is scarce; late will be good if it rains. Early potatoes are small, and only half crop; late also will be half crop. Onions will be a fair crop. Late tomatoes cannot be more than half a crop. Sweet corn is scarce, and demand is good. Altogether the prospect for big crops is not encouraging.—Thos. R. Stokes.

BRANT COUNTY

Scotland.—Cucumbers are not doing well. Turnips are looking fine. Onions have made rapid growth; mildew has appeared, and will materially affect the yield. Potatoes will yield a small crop. Cauliflowers are making a good growth, and promise a fair crop. Other vegetables are up to the average.—F. Smith.

TORONTO DISTRICT

Potatoes are a light crop and small. Cabbages and cauliflowers are poor. Beets, carrots, parsnips, and turnips have been at a standstill for some time. Early celery is running to seed. Late celery will have to hurry up after the September rains to be worth taking up. If rain comes soon, the late cauliflower and cabbage will be all right. Tomatoes are a light crop and badly sun-scorched. Lettuce is light, and most of it running to seed. Beans are good and free from spots. Transplanted onions are good; seed Danvers, light. Rhubarb is in good demand.—Joseph Rush.

HAMILTON DISTRICT

Tomatoes are coming in quite plentifulld, but the yield will be only fair. Potatoes any all crops are badly in need of rain.—Jas. A. Stevens.

HALDIMAND COUNTY

Burlington.—Prospect for late potatoes is discouraging; blight has been destructive. Late tomatoes promise only 25% of a crop unless weather conditions change. Factories are beginning to feel anxious about the pack; on the other hand, growers are talking of not planting more than half the usual acreage next year, and also of a substantial increase in contract prices. Melons, egg plants, peppers, onions, cauliflowers and all crops are suffering for rain. The onion crop will be shortened at least 25% by drought, and cauliflowers 20%.—J. A. Lindley.

KINGSTON DISTRICT

Present indications point to a shortage in crops. Celery will be small. Late sowings of vegetables has been affected with the long continuous drouth. Potatoes are much below the average, both in size and quantity. Onions have been struck with the blight before half grown, which, of course, will result in scarcity. In fact, all vegetables sell at good prices except tomatoes, which sell at $1 a bushel.—John Watts.

RENFREW COUNTY

Ottawa.—Tomatoes are coming in very plentifully; the acreage is large, but only a

THE CANADIAN PRODUCE SALES AND AGENCY CO.

LONDON, ENG., MAKES

4 SPECIAL POINTS

For Apple Exporters. "Up-to-date" Shipping Terms.

POINT 1 Selling Commission is 5% Only and Inclusive

POINT 2 Cash Advance of $1.00 per barrel against documents.

POINT 3 Our Guarantee that $1.25 Shall Cover ALL FREIGHT EXPENSES

From your station right into London market, including all cartage, dock and market charges.

POINT 4 OUR SPECIAL STORAGE ARRANGEMENTS at Cheap Rates right on the London docks when required or necessary to wait for the market.

Note point No. 3 and write for full particulars of our up-to-date fixed Consignment Terms to the Canadian Produce Sales and Agency Co. **Arthur C. Deayton, Manager,**

Bank Chambers, Teddington, London.

Any and Every Kind of Agency Work Undertaken. Make good use of us.

Mention The Canadian Horticulturist when writing

British Columbia

Irrigated Fruit Lands

With Water Free

THE Kettle Valley Irrigated Fruit Lands Co. are offering for sale a large acreage of their magnificent fruit lands; these have been subdivided into lots varying from 6 to 15 acres; many of these lots are along the river front and are beautifully situated. The soil is a rich sandy loam and produces the finest Apples, Small Fruits and Vegetables, all of which find a ready market at very remunerative prices in neighbouring market of the Boundary District, where there are immense mines and smelters employing a large number of men; the present payroll of this district is $250,000 per month and the population is 10,000 and rapidly increasing. The Kettle Valley is about 30 miles east of the Okanagan Valley. The district is well served by railways, which will be shortly considerably extended. The irrigated lands are offered at from $100 to $150 per acre and there is NO RENT to pay for the water, of which there is a very abundant supply.

Write for Pamphlets

W. O. Wright, Managing Director, Midway, B.C.

Mention The Canadian Horticulturist when writing

fair crop. Corn is fairly good. Cabbage is plentiful and the winter crop is better and larger than was expected. There is a large crop of celery. Beets, carrots and turnips are a good crop. Large parsnips had poor germination and crop is light. Onion crop is good and fairly large. Early cauliflowers were a failure, and late ones are not doing as well as they should. Potatoes are a good crop and of excellent quality.—T. Mockett.

PEEL COUNTY

Clarkson.—All vegetables are suffering from want of rain. Early potatoes are small and a light crop; late kinds are looking fairly well. Early corn is coming in freely; later varieties are not filling up well, and will not mature unless rain comes very soon. Onions are looking well. Pickling cucumbers look well and promise a good crop. Early tomatoes are a fair crop; late ones are looking well, but dry weather may cause them to rot. They are commencing to do that now. Melons are looking well, and may turn out a good crop, though late.—W. G. Hórne.

Items of Interest

There will be two fruit canning establishments established in the Okanagan Valley, B.C., this year, one at Peachland and the other at Kelowna.

The Society for Horticultural Science will hold its fifth annual meeting at the Jamestown Exposition in connection with the 31st biennial meeting of the American Pomological Society, Sept. 24, 25, 26, 1907.

In various sections of southwestern Ontario, much was done to crops in late July and early August by the variegated cut worm, *Peridroma saucia*. The biological department of the Ontario Agricultural College, Guelph, investigated the trouble and suggested remedies. In another issue, a description of the pest will be published, with remedies.

The London, Hamilton and Toronto branches of the Ontario Vegetable Growers' Association held successful picnics during August. The president of the Ontario Association, W. J. Bushell, of Kingston, attended the picnics of the Hamilton and Toronto branches. All three picnics were favored by fine weather and large crowds.

At an orchard meeting held recently at Mr. John Robertson's, Inkerman, P.E.I., the question was asked, "Shall we use fillers in orchard planting?" Mr. A. McNeill, chief of the Fruit Division, Ottawa, replied: "Do not use fillers unless you are very scarce of land." This is a question of general interest, upon which the readers of THE CANADIAN HORTICULTURIST are requested to contribute letters for publication.

The Kamloops District.—Fruit is not at present produced in large quantities in the Kamloops District. There have been, however, many acres planted to fruit trees during the past few years which will soon be producing orchards. If we may judge from the productiveness of the old orchards in this district and the quality of fruit produced, Kamloops will soon be shipping hundreds of cars of fruit of the highest quality.—A. E. Meighen.

Read our popular premium offer on page vi., and secure free one Maynard plum tree, worth $1.50.

"I have been using Absorbine for the last three months and have great faith in it. I first tried it on a colt that got his leg cut in a barb wire fence. It healed up, but began to swell. I applied Absorbine, and it removed the swelling in twelve days," writes Mr. F. O'Neill, Wolseley, Sask. Absorbine is a pleasant remedy to use. It does not blister or remove the hair and the horse can be used during treatment. Read the advertisement in another column.

Grants to Horticultural Societies

THIS year, for the first time, the horticultural societies in Ontario have received their grants under the new act governing horticultural societies. In the past the societies received practically fixed grants, irrespective of the value of the work they were doing. This year the grant has been distributed on the following basis as described in the act:

An amount not exceeding $8,000 shall be subject to division among the horticultural societies of the Province as follows:

(*a*) $2,400 shall be subject to division among all the societies in proportion to the total number of members in the preceding year.

(*b*) $4,800 shall be subject to division among all the societies in proportion to the total amount expended by each society during the preceding year for horticultural purposes, as shown by their sworn statement.

(*c*) In addition to the above, $800 shall be subject to division among the horticultural societies in cities having a population of 30,000 or over, in proportion to the number of members in the current year.

Divided upon the foregoing basis the grants to the societies this year have been as follows:

	No. of Members.	Grant on Membership.	Grant on Expenditure.	Total Grant.	Approximate Grant Received under the Old Act.
Barrie	65	$25.00	$35.00	$ 60.00	$ 71.00
Belleville	116	44.00	89.00	133.00	140.00
Bowmanville	91	34.00	71.00	105.00	82.00
Brampton	119	45.00	88.00	133.00	123.00
Brantford	53	20.00	90.00	110.00	138.00
Cardinal	68	26.00	70.00	96.00	140.00
Cayuga	102	39.00	56.00	95.00	104.00
Clifford	143	54.00	84.00	138.00	75.00
Clinton	105	40.00	79.00	119.00	78.00
Cobourg	82	31.00	70.00	101.00	140.00
Collingwood	140	53.00	73.00	126 00	71.00
Dunnville	100	38.00	46.00	84.00	New
Durham	57	22.00	50.00	72 00	59.00
Elmira	55	21.00	35.00	56.00	50.00
Elora	55	21.00	38.00	59.00	41.00
Fergus	63	23.00	47.00	70.00	42.00
Galt	104	39.00	94.00	133.00	91.00
Goderich	41	16.00	47.00	63.00	78.00
Grimsby	61	23.00	23.00	46.00	44.00
Guelph	93	35.00	94.00	129.00	105.00
Hamilton	171	64.00	147.00	365.00	350.00
Hespeler	80	30.00	70.00	100.00	70.00
Kincardine	135	51.00	72.00	123.00	61.00
Kingston	184	69.00	120.00	189.00	140.00
Lindsay	82	31.00	50.00	81.00	73.00
London	168	63.00	130.00	388.00	140.00
Midland	75	28.00	48.00	76.00	52.00
Millbrook	53	20.00	44.00	64.00	68.00
Mitchell	110	41.00	56.00	97.00	60.00
Napanee	57	21.00	79.00	100.00	140.00
Newmarket	67	25.00	80.00	105.00	61.00
Niagara Falls	58	22.00	37.00	59.00	52.00
Oakville	70	26.00	52.00	78.00	59.00
Orangeville	102	38.00	61.00	99.00	119.00
Orillia	76	29.00	63.00	92.00	60.00
Ottawa	273	103.00	250.00	690.00	350.00
Owen Sound	90	34.00	76.00	110.00	37.00
Paisley	116	44.00	65.00	109.00	48.00
Perth	127	48.00	106.00	154.00	123.00
Peterboro	166	62.00	71.00	133.00	115.00
Picton	97	37.00	47.00	84.00	78.00
Port Dover	60	23.00	61.00	84.00	61.00
Port Elgin	55	21.00	30.00	51.00	42.00
Port Hope	97	36.00	58.00	94.00	92.00
Preston	99	37.00	105.00	142.00	102.00
St. Catharines	287	108.00	304.00	412 00	45.00
St. Thomas	84	31.00	45 00	76.00	New
Seaforth	142	54.00	111.00	165.00	61.00
Simcoe	75	28.00	65.00	93.00	68.00
Smith's Falls	140	53.00	93.00	146.00	99.00
Springfield	126	48.00	52.00	100.00	62.00
Stirling	52	19.00	52.00	71.00	76.00
Stratford	161	61.00	105.00	166.00	93.00
Strathroy	140	53.00	72.00	125 00	84.00
Thornbury	56	21.00	24.00	45.00	31.00
Tillsonburg	65	24.00	34.00	58.00	48.00
Toronto	118	44.00	159.00	317.00	140.00
Vankleek Hill	57	22.00	28.00	50.00	New
Walkerton	60	23.00	52.00	75.00	85.00
Waterloo	152	57.00	101.00	158.00	123.00
Windsor	179	67.00	177 00	241.00	105.00
Woodstock	93	35.00	69.00	104.00	61.00
	6,368	$2,400.00	$4,800.00	$8,000.00	$800.00
Colborne... Special Grant	181			$140.00	

Of the special grant to the four city societies Ottawa received $337, London $195, Hamilton $154, and Toronto $114. These sums are included in the total grant as given in the table. As a result of the new act six societies this year went out of existence. These societies, and the grants (approximately) that they received last year, are as follows: Aylmer $74, Chesley $63, Deseronto $100, Lanark $81, Renfrew $140, Tara $32, total grants, $490. Most of these societies, including Aylmer, Lanark and Renfrew, were in the habit of turning their funds to their local agricultural society.

Three new societies have been formed during the past year, including Dunnville, St. Thomas and Vankleek Hill, whose grants this year amount to $210.

It will be noticed that most of the societies receive considerable increases in their grants. St. Catharines society jumps from a grant of $45 to $412, and not including the special $800 grant to the city societies, it draws a larger grant than any other society. The four city societies, excepting Hamilton, get decided increases in their grants, the grant to the Ottawa society having been almost doubled, and to the London society, considerably more than doubled. The London society makes a splendid showing. Owen Sound, Kincardine, Seaforth and Windsor have their grants more than doubled. It is expected that at the next convention of the Ontario Horticultural Association, which will be held in Toronto at the time of the Ontario Horticultural Exhibition next November, representatives will be present from the societies that make the best showing and will give an account of the methods of work followed by their societies.

Fruit Crops and the Prospects

PRESENT indications point to an apple crop in Canada much below early predictions. The prospect has declined some. The yield of early varieties is much below the average. The demand is good, as in many districts early and fall apples are scarce. An average crop of winter apples is expected with quality good. So far the orchards, with some exceptions, have been remarkably free of pests. Growers are confident of securing good prices this coming season. The fact that such apples as Maiden's Blush are bringing in the United States from $3 to $6 a barrel, and several other varieties from $3 to $4, would indicate that Canadian apples should bring good prices. Several of the Cooperative Fruit Growers' Association of Ontario have received enquiries for cars of apples for fall delivery, which also points to good prices in general. A letter recently received from the United States, states that they will have to look to Canada for their supply of apples this coming season. All these things point to a favorable season for our producers. The following reports from crop correspondents of THE CANADIAN HORTICULTURIST state the situation in the various centres:

YALE AND CARIBOO DISTRICT, B.C.

Lillooet.—Cherry crop was small; berry, very good; peach, a total failure; pear, very good; and apples, plums, and crabapple will be a good crop.—Darwin.

Peachland.—Prospects for an all-round crop of fruit are good. Frequent showers, together with irrigation schemes, have done wonders. Peaches are bringing $1.25 to $1.50 a 20-pound box, and apples, $1.25 to $1.50 a 40-pound box, f.o.b.—Jas. R. Aitkens.

ESSEX COUNTY, ONT.

Leamington.—Fruit is scarce, being killed in May last. Raspberries are now gone. They brought $3 to $3.50 a 24-box crate. Blackberries were nearly all killed last October, and are scarce now, selling at $3.50 a crate. Apples, pear, plums and peaches will have to be brought in to supply the local trade.—E. E. Adams.

WENTWORTH COUNTY, ONT.

Hamilton.—The fruit crop is less than was at first anticipated. Grapes promise an exceptionally heavy yield, but all others will be a failure. Peaches will not be one-quarter of a crop, and the late free-stone varieties will be scarce. Pears are only about one-quarter crop. Plums of the fancy varieties are scarce, but Lombards will be a good crop, providing they do not drop before harvesting. Thimbleberries are only a fair crop, and unless we get rain soon, the yield will be small. Muskmelons are doing well, and the yield will be large.—Jas. A. Stevens.

PEEL COUNTY, ONT.

Clarkson.—The dry weather is having a bad effect on all fruits. Raspberry crop did not come up to expectations; cherries have been a fair crop; pears will be medium; plums, medium; late and early apples promise a fair crop and will be clean and of good quality. Rain is badly needed just now. Owing to the drought, Lawton berries will yield a fair crop.—W. G. Horne.

CHATEAUGUAY COUNTY, QUE.

Chateauguay Basin.—Small fruits were damaged during the winter, and apples, on the whole, will be only half a crop. Some growers have a bumper crop. Buyers are holding off.—T. Reid.

HUNTINGDON COUNTY, QUE.

Maritana.—Apple crop is looking fine, although two weeks later than usual. For years, the Flemish Beauty pear has been light and poor in quality; this year, however, it is clean and plump, and the trees are heavily loaded. Buyers have not quoted any prices as yet.—Wm. G. Parham.

CHARLOTTE COUNTY, N.B.

St. Andrews.—Apples will be a medium crop this year. The early varieties are small and backward, and the later varieties scarce. Small fruits are scarce. Apples are bringing $2 to $3 a barrel.—Jules S. Thebaud.

QUEENS COUNTY, P.E.I.

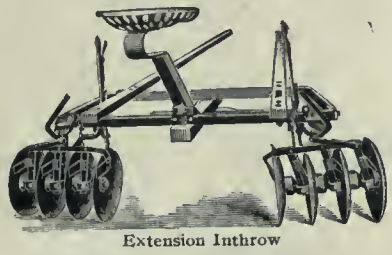
Long River.—The prospects for an apple crop are not favorable. The crop will be light and none will be exported. On the other hand, it is altogether likely that some will have to be imported to fill the local demand. Plums are a full crop and free from pests; cherries, poor; small fruits look excellent and will bear heavily.—John Johnstone.

ANNAPOLIS COUNTY, N.S.

Bridgetown.—The apple crop will not be more than an average one. Nonpareils are grown quite extensively, but will be a light crop. No prices have been offered as yet. The value of spraying has been demonstrated in this section by the good quality of the fruit in orchards that were sprayed.—F. H. Johnson.

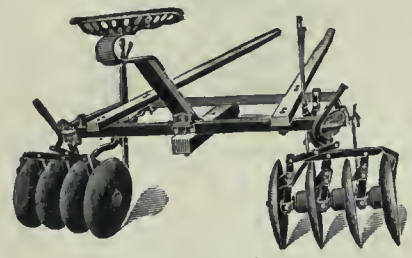
We Want Names.—We would like to have each subscriber to THE CANADIAN HORTICULTURIST forward us the names of a number of their friends who are interested in horticulture. This will not greatly inconvenience the readers of THE HORTICULTURIST, and will be appreciated by us. It will help us to introduce THE HORTICULTURIST to your friends.

BISSELL'S



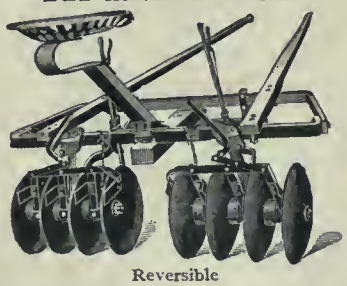
Extension Inthrow

ORCHARD



Extension Outthrow

HARROWS



Reversible

Built in sizes for 1 or 2 horses. Immense capacity for hard work and thorough cultivation.

It will pay any man to investigate the "Bissell" Harrows before buying. With us you get what you want. Some other places you take what they have. We save you money and give our customers the best satisfaction. It costs some folks a lot of money to find this out.

WILL EXHIBIT AT TORONTO, OTTAWA AND LONDON FAIRS

Manufactured only by

T. E. BISSELL, DEPT. N., ELORA, ONT.

Mention The Canadian Horticulturist when writing

Apples for Export

REPRESENTING

THOS. RUSSELL, Glasgow

J. & H. GOODWIN

Manchester, Liverpool and Hull

¶ Will be pleased to keep you advised regarding the condition of the European markets. ¶ If you have any apples for export call or write

Fred. Barker, 25 Church St., Toronto, Can.

Mention THE CANADIAN HORTICULTURIST

WANTED—APPLES

FRUITS OF ALL KINDS

F.O.B. OR CONSIGNMENTS

WRITE OR WIRE

Geo. Vipond & Co.

606-610 St. Paul St., Montreal

Branch—Winnipeg, Man.

Mention The Horticulturist when writing

NOTES FROM THE PROVINCES

By our Regular Correspondents and Others

Nova Scotia

Wm. Sangster, Falmouth

The apple crop is medium. Some orchards are a full crop, but trees that bore heavily last year have very few on this. Spys are a full crop in every orchard. Apples promise to be extra good, free from spot, and large.

Caterpillars are just as plentiful as last year, but cankerworms have made their appearance for the first time. As soon as noticed, the farmers gave an extra spraying and we hope it will not be seen another year. Strawberries were a small crop, but raspberries and blackberries a full crop.

Up to the present time there have not been any buyers in this locality. Mr. Howard Bligh has visited several orchards, but has not made any mention of prices. Advices received by me from London would cause me to think that Nova Scotia apples will be in good demand and that good prices will be obtained for clean, well-packed fruit.

Quebec

W. Saxby Blair, Macdonald College

Judging from what I have seen of orchards in the locality around Macdonald College, I would place the crop as light for early apples and medium for fall and early winter. The Transparents are fair; Duchess, light to medium, Red Astrachan, light; Fameuse, medium; and small for this season of the year; St. Lawrence, light; Alexander, medium; Wealthy, light to medium; Tolman, good; and Ben Davis, fair.

Pears are grown very little. Flemish Beauty, the one that does best, is carrying a medium crop. Plums generally are light. Indications are that good early apples will command a good price. Apples on the whole are small, but quite free from scab. Transparents at this date, Aug. 14, are just about ready for market.

Prince Edward Island

Rev. Father Burke, Alberton

Whilst the small fruits *i.e.*, the gooseberries and currants, are now ripe and a splendid crop; indeed, the strawberry return, because of all the plants lost last season, was not large. The abundant moisture favored the plantations that were not killed out, however, and our growers have made well out of what they were able to market. We have the late July market pretty well to ourselves, and as we close the strawberry circuit, there is no limit to our possibilities as to sales. Raspberries, wild or cultivated, are a fair crop, and now in the market.

The apple situation is not overpromising. We expected a big crop, but somehow or other it has not materialized. Some varieties are well loaded; others, scant. There were few, if any, frosts in the time of bloom of the late varieties; still, after an abundant showing of flowers there is very little late fruit. The whole result in apples, early and late, will be below a medium crop.

There is an immense growth of wood for one season and not many insect pests. The trees should get a grand push forward and be ready to do good work next year.

Mr. McNeill finished his series of meetings. He found many splendid orchards and advised islanders to go heavily into fruit-raising. He also made a propaganda of cooperation with success.

Montreal

The berry handlers here seem to like the 36-quart crates made at Oakville, with iron clip fastener at sides. They land fruit in good condition.

It is not an uncommon thing here to see 200 piles of bananas, 10 bunches in each pile—2,000 bunches, on the floor of the Fruit Auction Co., each pile numbered and ready for auction. It is a pretty sight, yellow and green mingled through each pile.—E.H.W.

Manitoba

Jas. Murray, Supt. Expt. Farm, Brandon

While the fruit crop of this Province is of minor importance, we have, this year, an unusually heavy crop of wild fruit, including wild plums, Saskatoon berries, raspberries and strawberries.

On the Experimental Farm, and on other farms where these fruits are grown, cross-bred apples and crabapples are fruiting heavily. On this farm we have many varieties this year that have not previously borne fruit, and in all probability we will have a few varieties of good

Fruit Trees

The Helderleigh Nurseries have long been famed for the excellence of their Fruit Trees. The stock is of undoubted quality and the trees are admirably grown for fall or spring planting.

Vines

A splendid lot of well-ripened canes in one and two year olds.

Ornamental Trees

A rich and varied collection of finely grown trees suitable for planting for effect in parks, streets or gardens.

Descriptive Catalogue and Prices Post Free on Application

Coniferous and Evergreen Shrubs

An unsurpassed collection which consists of all the best and hardiest varieties.

Deciduous Shrubs

An immense stock of all the hardy varieties. Field grown stock with masses of fibre.

Roses

A complete collection of the best varieties in dwarfs and standards.

Climbers

In great variety. All transplanted, strongly rooted, in thousands.

A Few Vacancies for Agents of Undoubted Respectability

Helderleigh Nurseries **E. D. SMITH** WINONA, ONT.

Established ¼ Century Acreage 800

Mention The Canadian Horticulturist when writing.

quality. None of these fruits, however, enter in commerce, as the quantity produced is very limited. All the small fruits such as currants, raspberries and strawberries are very much better crops than they have been for years, as we have had not late frosts interfering with the fruit.

The Okanagan Valley

H. Gordon, Vernon, B.C.

A considerable area of strawberries came into bearing this year for the first time. The crop was good, but probably over 50 per cent. of it was absorbed by the local demand, The price for the best was $3.75 per crate of 24 baskets. The favorite variety is Magoon, prized for its good shipping quality. No growers appear to have planted late strawberries to succeed Magoon; there is an opening for late varieties, especially at present when the demand exceeds the supply greatly. A variety more suitable for the local trade than Magoon might easily be found; the qualities which adapt a strawberry for shipping are rather a detriment than an advantage for local sale. At present, however, a strawberry is merely a strawberry to the western merchant; quality, except in regard to size, goes for nothing. With the increased supply likely to be seen in the next few years, it is probable that merchants will be led to discriminate and offer higher prices for varieties of higher general quality than Magoon. A glance at the display in the local stores reveals the fact that much has yet to be learnt here in regard to picking the fruit, but taking it all round the strawberry harvest has been creditable to the growers.

The cherry crop was much below the average, and a very severe thunderstorm accompanied by hail did severe damage in some localities. It is feared that many orchards have been ruined for the season, but the storm was irregular in its course, and it is to be hoped that time will prove that the many escaped while the few were injured. Such a storm is most unusual in this valley. As a general rule the reports from the apple orchards predict an excellent crop, whilst it is probable that the peach crop will still further enhance the reputation of the southern portion of this valley.

The Farmers' Institute recently advertised an evening lecture in Vernon, "On Fruit," by a gentleman from Victoria. No report of the meeting has appeared in the local press up to the present, and the writer has been unable to find anyone who attended. It is possible that the indefinite title of the address failed to attract those for whom it was designed; it is in any case certain that the fruit growers would attend such meetings in large numbers if they could anticipate with some degree of certainty attractive and instructive meetings addressed by persons entitled to speak with authority.

The need for an experimental station with a staff of such experts is being felt more and more. Meanwhile, discussions on important or topical subjects might be held with advantage; but neither the Farmers' Institute nor the local fruit growers' association, which exists only in name, makes any such attempt to assist its members.

British Columbia

C. P. Metcalfe, Hammond

The long drought has at last been broken. Considerable rain has fallen, helping along the blackberries, fall and winter apples, pears and prunes. Plums dropped heavily before the rain came, and are now showing considerable plum rot, *Monilia fructigena*. Of the early apples, Yellow Transparents and Duchess were a very light crop. Red Astrachan bore a fair crop of clean fruit, though somewhat deficient in color. Gravensteins are showing up well, probably 80 to 90% of them will be No. 1. Cherries bore a light crop, but of excellent quality, the season being conspicuous by the absence of rot. Crab-apples also are a good crop; Transcendent, 100%; Hyslop, 80%; Florence and Martha, 75%.

Prospects for another year in strawberries and raspberries are fairly good. Plants, canes, bushes, and so forth, seem to be recovering quickly from the unusually dry season, and are making rapid growth.

Special attention should now be given to the orchard and all cultivation should be gradually discontinued. Cover crops can now be sown to take up the surplus moisture and to check the growth of the trees. Trees are liable to grow too late in the fall in this Province, especially on the lower mainland, where we sometimes have a considerable rainfall during the month of September.

The Packer Safety Fruit Wrapper.—Buntin, Gillies & Co., Hamilton, are offering for sale the best fruit wrapper that has been put on the market. This paper is sold in four different sizes, and at prices that put it within reach of all fruit growers. An excellent factor about the paper is that it is finished smooth on one side and rough on the other, the rough side goes next the fruit, and is supposed to absorb any moisture on the fruit while the smooth side, being hard finish, resists the moisture from the outside and keeps the fruit dry. The light crops this year will probably induce the wrapping of fine specimens more than usual and should create a large demand for fruit wrapping paper. For full particulars see advertisement in this issue.

The Herbert is the leading variety of red raspberries. Fruit growers who have tested it under normal conditions have found it the variety most productive and profitable. Plants derived from the original stock are to be had at the Ottawa Nurseries. Read the advertisement on another page.

A COURSE FOR YOUR BOY AT THE AGRICULTURAL COLLEGE GUELPH, NEED NOT EXCEED $100 PER YEAR

College Opens Sept. 17th

Closes April 15th

A FEW OF "OUR" BOYS

WE HAVE THE BOY IN THE WINTER—YOU HAVE HIM AT HOME ON YOUR OWN FARM IN THE SUMMER. MAKE APPLICATION AT ONCE AS ACCOMMODATION IS LIMITED

Mention The Canadian Horticulturist when writing

G. C. CREELMAN, B.S.A., M.S., President.

Some Recent Bulletins on Orchard Pests

Reviewed by Prof. Wm. Lochhead, Macdonald College

"INSECT and Fungus Enemies of the Grape east of the Rocky Mountains," by Quaintance and Shear (Farmers' Bulletin 284 U.S. Dept. of Agric.)—This valuable bulletin discusses such enemies of the grape as the root-worm, the berry-moth, the curculio, the leaf-hopper, the leaf-folder, the flea-beetle, the rose-chafer, and the black-rot, the downy and the powdery mildews, the anthracnose, the ripe-rot, the bitter-rot, the white-rot, the crown-gall, the root-rot, and "shelling." Of these, Canadian vineyards are free from the root-worm, the curculio, and perhaps the crown-gall and the root-rots. The treatments recommended for these enemies of the grape are similar to those given in the O.A.C. and the C.E.F. bulletins. Regarding the cause of "shelling" of grapes, which is sometimes serious in the Niagara district, nothing definite is given. The disease may be due to an imperfectly known fungus operating in improperly pruned and trained vines. The bulletin is well illustrated, and the life-histories of the insects and fungi are concisely stated.

SOMETHING ABOUT SOW-BUGS

"Notes on the Economic Importance of Sow-bugs," by W. D. Pierce (Bull. 64, Pt. II, Bureau of Entomology, U.S. Dept. of Agric.)—The sow-bug or "pill-bug" is a very common creature in dark, damp places, and in wet years may do injury to garden crops, flower gardens, vines, etc. On the other hand, it is a useful scavenger, but there is a danger that disease may be transmitted on account of this scavenger habit. "Cleanliness is probably the best preventive against sowbugs' inroads, arsenical compounds the best out-door remedies, and carbon bisulphide the best in-door remedy." Much interesting information is furnished regarding the habits and life-histories of three species, *Armadillidium vulgare*, *Porcellio lævis*, and *Metoponorthus pruinosus*, of which but little was known.

THE CODLING MOTH

"Spraying for the Codling Moth," by J. W. Lloyd (Bull. 114, Illinois Agric. Exp. Station).—This is also a live problem in Canadian orchards, and the results of reliable experiments along the line of prevention of wormy apples are always welcome. The Illinois experimenters found that it pays to spray carefully and thoroughly with Paris green-bordeaux twice, at least, for the first brood, the first application being given when the petals have fallen, and the second a week or ten days later. A large percentage of the fruit will be saved, and the injury done by the second brood much lessened. Moreover, there is a decided advantage in late spraying for the control of the second brood. If but one application be made it should be done in early August, as this spraying will catch the majority of the worms before they burrow far into the apple. When it is remembered, however, that the worms of the second brood continue to appear for a period of four or five weeks, the wisdom of several sprayings becomes apparent. Some of our apple growers now make these applications for the control of the "scab."

THE SAN JOSE SCALE

"Commerical Miscible Oils for Treatment of the San Jose Scale," by Messrs. Parrot, Hodgkiss and Sirrine (Bull. 281, N.Y. Agric. Exp. St.)—The Geneva experimenters found that applications of proprietary miscible oils in the proportion of 1 to 20 or 25 of water, failed to give uniform results, and that when a stronger solution was used, such as 1 to 10 or 15, it did not give as good results as the boiled lime-sulphur wash and was much more costly. These results coincide with those from Ohio, and with those obtained by the Ontario Department of Agriculture, under the direction of the writer, two years ago.

APPLE AND PEAR MITES

"The Apple and Pear Mites," by Messrs Parrot, Hodgkiss and Schoene (Bull. 283, N.Y Agric. Exp. St.)—This bulletin represents an earnest study of the mites that thrive upon the apple and pear. Five species were observed and described, the leaf blister mite, *Eriophyes pyri*, being the most abundant. This blister-mite is frequently abundant on young stock in some of our Ontario nurseries. The best treatment is to prune carefully, and to spray during the late fall or early spring with kerosene emulsion diluted with five parts of water, with miscible oils diluted with 15 to 20 parts of water, or with sulphur wash.

On another page can be seen the advertisement of the new Gulline Folding Fruit Box. The illustration shows the box packed ready for shipment as well as folded flat for transportation to the packer. All parts are pivotally and permanently attached together, there are no nails to drive or take out, the four screws sent with each box serve to complete it for shipment. It is cheap and exceedingly strong, the sides and ends are recessed into the frame pieces, and the box is made of hardwood. The frames, which project all round the body of the box, serve as handles by which to pick it up; they also form an air space round the contents, regardless of how closely the boxes may be placed together for transportation. The surfaces are all sufficiently flexible to allow for the usual shrinkage of the fruit in transit.

Have you a Maynard plum tree? If not, let us send you one free as described in our announcement on another page of this issue.

Dominion Line

ROYAL MAIL STEAMSHIPS

"Alberta," new steamer, 14,000 tons, building
"Albany," new steamer, 14,000 tons, building

MONTREAL TO LIVERPOOL

S.S. "SOUTHWARK" . . . Sept. 7th
S.S. "CANADA" . . . . . " 14th
S.S. "OTTAWA" . . . . . " 21st
S.S. "DOMINION" . . . . " 28th
S.S. "KENSINGTON" . . . Oct. 5th

Above steamers all carry passengers.

MONTREAL TO BRISTOL
(Avonmouth Dock)

S.S. "ENGLISHMAN" . . . Sept. 14th
S.S. "MANXMAN" . . . . " 28th
S.S. "TURCOMAN" . . . . Oct. 12th

Favorite Steamers for all kinds of perishable cargo having fan ventilation, cold storage, and cool air chamber.

GEORGE W. TORRANCE, Freight Agent . 28 Wellington St. E., TORONTO
M. A. OVEREND, J. W. WILKINSON . . . . . Travelling Freight Agents

DOMINION LINE—PORTLAND, Maine.

Mention The Canadian Horticulturist when writing.

YOUR APPLES

We will handle on consignment or buy for cash
If you are interested write to-day to our agents

W. B. STRINGER & CO.

32 CHURCH ST., TORONTO

GLOVER, HILL & CO.

LIVERPOOL, ENGLAND

Mention The Canadian Horticulturist when writing

Preservation of Fresh Fruit

Considerable interest is being taken in Melbourne over the invention of a local engineer, who claims to have perfected an entirely new and inexpensive method for the preservation for a long period of fruit and other perishable produce, reports Mr. D. H. Ross, Canadian Commercial Agent in Australasia. Very satisfactory experiments have been conducted for nearly a year, and as a result patents are now in contemplation for all countries interested in the storage and export of fresh fruit. The inventor states that the deterioration in fruit is largely due to evaporation, and he has devised a simple process by which the evaporation is greatly retarded. The experiments have been conducted in a chamber formed of insulated walls and roof, the special feature of which is a ventilator that saturates the air which passes through, thus giving such a humid atmosphere that the fruit cannot throw off moisture.

Fruit stored under such conditions for over six months opened up in splendid condition. The merits claimed for the invention are its reliability, insignificant expense and simple operation, for no costly refrigerating machinery has to be provided. The process has been strongly recommended by a responsible officer in the Victorian Government's Department of Agriculture. There seems little reason to doubt that much more will be heard of this invention in the near future. Developments will be carefully watched and commented upon in a future report from this Canadian commercial agency.

FOR SALE AND WANT ADVERTISEMENTS

Advertisements under this heading inserted at rate of one cent a word for each insertion, each figure, sign or single letter to count as one word, minimun cost, 25 cents, strictly cash in advance.

PANSIES.—100,000 ready after September 15th. Four Dollars per 1,000. T. M. Wood, Baltimore, Ont.

WANTED—Persons to grow mushrooms for us at home; waste space in cellar, garden or farm can be made to yield $15 to $25 per week; send stamp for illustrated booklet and full particulars. Montreal Supply Co., Montreal.

Well-Known Gardener

A man well-known to the vegetable trade of Ontario is Mr. T. Wistow, of London, the subject of the accompanying engraving. Mr. Wistow came to Canada from Sheffield, Eng., in 1882. For some time he worked at the trade of a steel-worker, but for the last 23 years he has been a market gardener and florist.

Being a firm believer in organization of growers Mr. Wistow has been a member of the Gardeners' and Florists' Associations of London since its inception. For seven years he was its secretary-treasurer, and for the last ten years (with his colleague, Mr. T. Ball) has represented the association on the agricultural committee of the western fair. When the association decided to affiliate with the Ontario Vegetable Growers' Association last spring, Mr. Wistow expressed his intention of resigning office, but was urgently requested to take the position of secretary-treasurer for the new organization. He was elected also a director of the Ontario Vegetable Growers' Association and its vice-president.

At his home in London East, Mr. Wistow is working 10 acres of garden land. Being a believer in securing quality before quantity, he grows a general crop. In his own words, "I do not care much for the specialty business.

Mr. T. Wistow

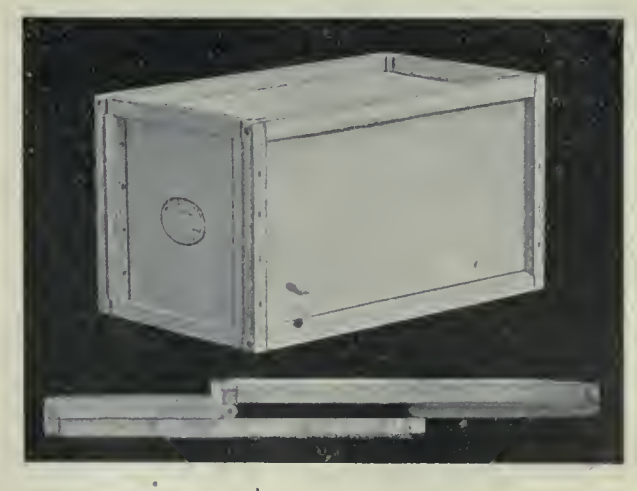
If vegetables are grown on a large scale, there is a tendency to lower the price of the article produced."

Would some of your western readers kindly tell the prospects for market gardening in Vancouver or Victoria, B.C? Reply through the columns of THE CANADIAN HORTICULTURIST.—W.A.B.

I was much pleased with a sample copy of THE CANADIAN HORTICULTURIST received a day or two ago. If I had known of your paper, I should have subscribed before.—J. E. Houghton, Crawford Bay, B.C.

GULLINE'S FOLDING FRUIT BOX

The strongest, lightest, and most economic fruit box ever offered to fruit growers



In placing **Gulline's Folding Fruit Box** on the market we beg to call your attention to its special features:

The illustration shows the box packed ready for shipment as well as folded flat for transportation to the shipper. All parts are pivotally and permanently attached together, there are no nails to drive or take out; the four screws we send with each box serve to complete it for shipment. It is cheap and exceedingly strong, the sides and ends are recessed into the frame pieces, and the box is made of hardwood entirely. The frames, which project all round the body of the box, serve as handles by which to pick it up; they also form an air space round the contents, regardless of how closely the boxes may be placed together for transportation.

The surfaces are all sufficiently flexible to allow for the usual shrinkage of the fruit in transit.

The economy to be effected in storage room, and the convenience in handling them in the orchard and packing room is self-evident. Special machinery has been installed for the rapid production of **Gulline Boxes.** Orders should be forwarded immediately as the production for this season is limited to a few hundred thousand. We will be specially pleased to send a sample box and quotations to the cooperative associations. See our box and know our prices and you will not buy the old-fashioned,cumbersome kind.

THE FOLDING BOX CO., Limited, OWEN SOUND, ONTARIO

Mention THE CANADIAN HORTICULTURIST when writing

Fruit Growing in Prince Edward Island

A. McNeill, Chief, Fruit Division, Ottawa

THE Department of Agriculture for the Province of Prince Edward Island, with the cooperation of the Provincial Fruit Growers' Association, arranged a series of orchard meetings which were duly held during the month of July. The Dominion Department of Agriculture responded to an invitation from Mr. Reid, Commissioner of Agriculture, and I was deputed to attend these meetings.

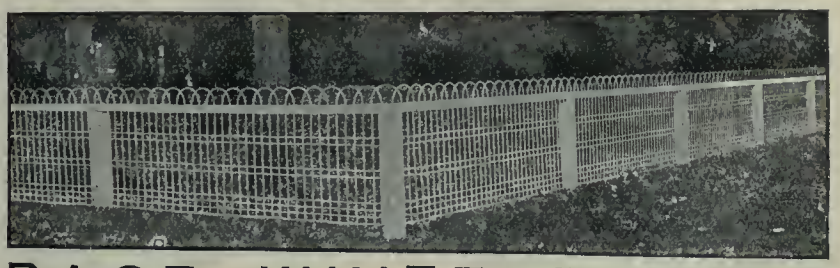
The climatic conditions of the Island are such as to render it somewhat hazardous to attempt to grow the popular winter varieties such as the Spy, Baldwin and Greening. These varieties are indeed grown in certain protected districts, but cannot be recommended for general culture. The high winds prevailing there are another factor which demands special attention. The excessive snowfall has to be reckoned with, as also has the very low temperatures which might be expected from its northerly situation. Notwithstanding all these circumstances, the Island produces most excellent fruit of at least a few varieties. I have seen their exhibit of fruit on three or four occasions, and can say without reservation that the finest box of apples I ever saw grown and packed in the Dominion of Canada, was a box of Baxters grown on Prince Edward Island and exhibited at the annual meeting of the provincial association in 1905. The Gravensteins exhibited at the same time and upon other occasions, show that this variety reaches perfection here. Unfortunately the tree is no healthier on the Island than it is in Nova Scotia, and consequently cannot be recommended for general planting unless it is carefully top-grafted upon hardy stock. The Duchess, Wealthy, Alexander, Wolf River, McIntosh Red, Pewaukee, Baxter, Stark and Ben Davis are the varieties that can be confidently recommended at the present time. These are quite sufficient to form the basis of a splendid apple trade, and if the Island can grow no others —which is by no means the case—it might yet become famous as an apple-growing district.

The Islanders are making a few mistakes in cultural methods. They allow grass to grow in the orchard and they start the heads of the trees too high. [NOTE.—These points are dealt with more at length in the editorial columns of this issue.—EDITOR.]

Varieties, of course, are a serious matter. The people naturally like varieties that havo been successful in other provinces, and will net be satisfied unless they can grow everything that has been grown everywhere else. It will take more education to persuade them that it would be a good thing if the commercial orchards of the whole Island were confined to three or four varieties.

Of course they have been experimenting with "fillers." To accentuate the evil, the standard trees are planted much too close. I have added my testimony to the evils of close planting, as well as to the very grave mistake of using "fillers" at all where land is cheap.

Closely connected with this subject of the use of ground comes the question of fertilizing. The prevailing opinion on the Island is that a tree cannot be grown without the use of a large quantity of either commercial or barnyard manure. Here again the popular notion is a mistake. I would undertake to plant an orchard on good Prince Edward Island soil, and grow the orchard, at least till it begins to bear, say to the age of five or six years, with the use



PAGE WHITE FENCES

The Acme style you see above costs only from 16 cents a linear foot. Handsome and durable for lawns, parks, cemeteries, etc. Any height or length. Gates to match from $2.25. Write for catalog, or inspect this ideal fence. From us direct or any Page dealer.

The PAGE Wire Fence Co., Limited Walkerville Toronto Montreal St. John Winnipeg 212

PACKERS' "SAFETY"

Fruit Wrapper

PAPER

Recommended by Government Inspectors
Used with perfect results by largest growers

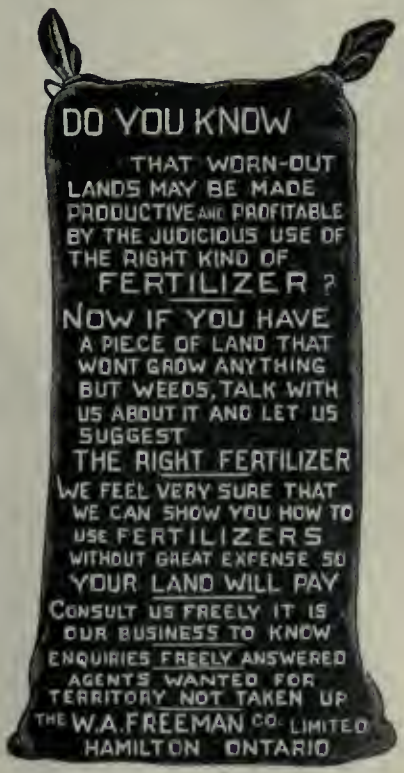
TAKE NO CHANCES WITH UNTRIED PAPERS

Large Stock, Following Sizes, Always on Hand:

8x 9....	10c	per ream	(480 sheets)
10x10 ...	14c	"	"
20x30....	81c	"	"
24x36....	$1.15	"	"

Buntin, Gillies & Co.
LIMITED
HAMILTON -- -- CANADA
MENTION THE CANADIAN HORTICULTURIST

Profit Producing Fertilizers



LADDERS FOR EVERY USE

FRUIT GROWERS in every part of Canada are using our celebrated double truss high carbon steel wire extension ladders.

LIGHTER
STRONGER
CHEAPER
} than any other ladder made.

The most perfect ladder in existence. Each side rail has a heavy, high carbon steel wire stretched along the inside, securely fastened at the end, forming a truss and prevents side swaying. Send for one of our new illustrated catalogues, giving sizes and prices.

THE BERLIN WOODENWARE COMPANY
BERLIN - ONTARIO
Branches in all parts of Canada

of little or no fertilizer of any kind. To do this the whole ground would, of necessity, after the first two or three years, have to be given up to the trees. Of course, the better way would be to keep the space about the tree the first year clean for three or four feet, and increasing this distance at least a foot a year until the trees occupied the whole ground. During that interval, low, late-growing crops could be grown between the trees, supplying sufficient fertilizer to make up for the plant food taken out by these crops.

The last great bugbear was the possibility of over-stocking the market. It was difficult to persuade the growers that for years to come they could not supply even the near-by towns of Nova Scotia, and when the needs of these had been met there was still the great Northwest and the markets of Great Britain ready and willing to take all they could grow.

The transportation facilities on the Island, while not all that could be desired, are quite equal, all things considered, to the rest of the Dominion, and will be very greatly improved as the fruit growers unite to demand better equipment and lower freight rates.

BECK-IDEN ACETYLENE LAMP

NO HEAT
NO DIRT
NO ODOR
NO SNOKE
NO CHIMNEYS
NO WICKS
NO MANTLES
NO VARIATION

BECK-IDEN ACETYLENE LAMP CO.,
86 Notre Dame St., W. - Montreal.

The Beautiful Flower Garden

By F. SCHUYLER MATHEWS

THIS artistic volume tells how to lay out and plan a small garden or lawn, so that the picturesqueness of the wider landscape gardening will result as far as possible. Four plans are given, two for laying out a country garden or yard, and two for a small city lot. This little volume sells for 40 cents, but we will send it FREE to any of our readers who will send us two new subscribers to **The Canadian Horticulturist.**

This splendid book should be in the home of every person at all interested in gardening.

Ontario Horticultural Exhibition

Great arrangements are being made for the next Ontario Horticultural Exhibition. The directors have decided to hold the exhibition this year in Massey Hall, instead of in the St. Lawrence Arena, as was proposed at first, it having been found that the expense of preparing the arena for the exhibition was so great as to be impracticable.

A special effort will be made to add some striking features at the next exhibition. One of these may include a hanging garden suspended from the roof of Massey Hall, and hanging in front of the gallery and over the main floor. This garden will be covered with beautiful orchids and other flowers and would include singing birds, and possibly a fountain, with other interesting features.

The county of Huron has made a grant of $75 to encourage an exhibit from that county and the Goderich Horticultural Society is anxious to arrange a large exhibit. Attempts are being made whereby the senior classes of the public schools of Toronto will be allowed to visit the exhibition as a class, accompanied by their teachers, during the mornings of the exhibition, free of cost.

The musical features this year will include the city bands of Toronto and of Hamilton for the evenings, while first-class orchestras will be engaged for the afternoons during the week. It is also probable that first-class lady and gentlemen singers will be engaged for the evenings at least. This, it is believed, will make a very attractive musical program. A great effort will be made to secure Sir Wilfrid Laurier to open the exhibition. The prize list is ready for distribution. Copies may be secured by application to the secretary, H. B. Cowan, Toronto, Ont.

Items of Interest

The Tillsonburg Horticultural Society has been very busy this season, as it undertook the restoration and beautifying of the Washington Grand Avenue Park, which it is making permanent with shrubs, perennials, bulbs and so forth. The society distributed about 500 packages of flower seeds to the school children.

The fruit prize list for the Ontario Horticultural Exhibition is practically the same as that of last year. Entries close on November 5. All fruit must be delivered at Massey Hall or the Toronto Cold Storage Co. on or before November 12. Write for a prize list and particulars to P. W. Hodgetts, Parliament Buildings, Toronto, Ont.

We have received a letter from Mr. A. C. Deayton, Bank Chambers, Teddington, S.W. London, Eng., who offers to correspond with any readers of THE CANADIAN HORTICULTURIST who desire information in regard to the London, Eng., market for apples. We have had considerable correspondence with Mr. Deayton and have found him well posted on British conditions. Mr. Deayton is interested in the handling of fruit in London.

Officers and members of the agricultural and horticultural societies of Ontario, who may be in Toronto during the Canadian National Exhibition, August 26 to September 7, are notified that a representative from the office of the superintendent of these societies will be present in the tent of the Ontario Department of Agriculture, located near the cattle judging ring on the grounds, from Friday, August 30, to Friday, September 6. Every one connected with these societies is cordially invited to make this tent his headquarters at the exhibition.

In the October number of THE CANADIAN HORTICULTURIST we purpose giving a diagram of a hardy herbaceous border, showing an arrangement of plants suitable to our Canadian climate. The arrangement will be such as to give a harmonious blending and progression of colors and a succession of bloom in all parts of the border throughout the season. Mr. E. Byfield, who contributes the article in this number on "Making the Herbaceous Border," has the work in hand, and is preparing it as a sequel to his present article. It is intended that the diagram will be of special interest, and will contain many helpful suggestions to those of our readers interested in that class of plants.

At this season, fruit growers are busy making preparations for the apple harvest. To secure best prices, they must pack their fruit properly. To do this and to prevent bruising in the box or barrel, paper in various forms may be used. Paper for wrapping apples, pears and peaches is carried in stock by G. P. Read, 199 Duane St., New York City; also cushions for boxes and barrels and corrugated caps. Read his advertisement on another page.

The importance of marketing fruit in perfect condition is being impressed upon the fruit growers of Canada. In years gone by, it was the custom to climb the tree and shake the fruit down, now the careful picker takes a ladder and goes up and picks the fruit. Ladders for this purpose must be light and strong. The Berlin Woodenware Co. will exhibit ladders at the Toronto Exhibition that are ideal for fruit picking.

Enclosed find my renewal subscription. The readers of your magazine get full value for their money.—E. Ruggles, Bridgetown, N S

Don't Wait Till the Frost

Make arrangements to have your heating plant in your conservatory in good order before the weather turns cold

"Sovereign" Hot Water Boiler

has given universal satisfaction as an economical and reliable heater. Works equally well with city water service or tank supply.

OUR BOOKLET, "EFFICIENT HEATING," FREE TO ANY ADDRESS

TAYLOR-FORBES COMPANY, LIMITED

1088 King St. W. TORONTO — GUELPH, ONT. — 122 Craig St. W. MONTREAL

Mention The Canadian Horticulturist when writing

Preserving Fruit and Vegetables

GOOD plum preserve is made as follows: Peel the fruit, and take equal amount of fruit and sugar. Place a layer of sugar, then a layer of fruit and so on in a stone jar. Let them stand over night and pour off the juice and boil. Skim well and drop the fruit into this hot syrup, cook slowly till clear, fill up the jars and seal hot.

PLUM MARMALADE

Boil the fruit till tender and run through a sieve, add same amount of sugar as pulp and cook slowly till it thickens. This may be sealed in this state, or it may be spiced and used with meats. One-half plum pulp and one-half crab apple pulp makes a better combination than all plum; or apples may be used instead of crab apples, but they do not give the firmness that the crab apple does.

GOOSEBERRY PRESERVES

The berries should be picked when they begin to show signs of ripening. Stem carefully, drop them into cold water and let them come to a boil. Remove from fire and pour off the water and when the berries have cooled drop them into boiling syrup made by using just enough water to liquify the sugar, and seal. The berries will stay quite whole and if the operation has been carefully done, will keep for years. Gooseberry preserves as above may be used in the place of cranberry preserves.

GOOSEBERRY CONSERVE

Take three pounds of gooseberries, three pounds of granulated sugar, one pound of stoned raisins, three large oranges; grind the skin and use the pulp and the juice. Put all together and cook slowly till thick. Seal hot.

CANNING TOMATOES

Have the tomatoes of a uniform ripeness. Pour boiling water over them to remove the skins. When peeled, place in a granite kettle and heat slowly without adding any water. A sprinkle of salt may be added. Boil for one-half hour and seal hot.

TOMATO CHILI SAUCE

Take twenty-five large ripe tomatoes, four white onions, three green peppers with the seeds removed. Slice the tomatoes so as to take out as many seeds as possible. Chop the onions and peppers fine and mix the three ingredients together. Heat three cups of cider vinegar and dissolve in it two cups of white sugar and two small tablespoons of salt. Pour this solution over the mixture and cook slowly one hour. Seal hot.

MUSTARD PICKLES

Take one quart of ripe cucumbers, cut in pieces one inch long, one quart of small green cucumbers, one quart of small white onions, one large head of cauliflower. Scald all in weak brine, and then place in weak vinegar water. Bring two quarts of cider vinegar to a boiling point. Take one small bottle of French mustard, six tablespoons of dry mustard, and one-half cup of flour. Add a little vinegar to the dry mustard and flour to make it into a paste and then add the French mustard. Dissolve two cups of sugar in the hot vinegar, also two tablespoons of tumeric, one-fourth teaspoon of red pepper. Add the mixed mustard paste to the hot vinegar carefully and strain if lumpy. Pour this boiling hot over the mixture and seal. If the brine water did not make the mixture salt enough more salt may be added.

CANNED CORN

Cut the kernels lengthwise and scrape the heart of the corn remaining on the cob. Fill the cans and jars and press the cover down hard so as to make it as tight as possible. Put the rubbers on the jars and screw the tops on tightly. Place in a steamer or in the cold water bath, and cook steadily for three hours, then take off the steamer and tighten the cover without removing them. Let cool in the steamer, and again tighten the covers, but do not remove the tops.

STORING PRESERVED FRUITS, VEGETABLES

The keeping qualities of preserved fruits and vegetables is greatly impaired by being stored in full daylight. This is especially true when glass jars are used. The jelly will soon become cloudy and dark when thus exposed. Marmalade and other preserves are apt to sour and become mouldy. No matter how well the fruit has been put up and how carefully sterilized and sealed, slow changes in the preserve will take place which sooner or later work their destruction.

The careful housekeeper will keep close watch over her preserved fruits and if indication of spoiling appears, the tops should be removed and all foreign substances removed and tops again replaced, after which the jars should be resterilized by placing them in a pan of cold water with cover over and then gradually apply heat until the boiling point is reached.

FRUIT JARS

The main point to bear in mind in selecting jars is, that the tops or covers fit tightly, as the fruit will not keep in leaky jars. Jars with large mouths or mouths of the same size as the rest of the jar are preferable to jars with small mouths, as it is much easier to put in the fruit and to take it out. A clear glass jar is preferable to one of colored glass as one can watch the keeping qualities of the preserve much better.

Canada's commercial agent in Leeds reports that South Africa is finding a good market for peaches in England. He is of the opinion that a large business can be done by Canada in pears and peaches if packed in boxes with two trays to a box.

Manson Campbell
President
The Manson Campbell Company, Limited
Detroit, Michigan
Chatham, Ontario

COOK WITHOUT FIRE

75% of the Family Food — Save 75% on Fuel Bills — Save 75% Time and Trouble — Food 75% Better Cooked

YOU can do all this—and more—and keep COOL while doing it—with the CHATHAM FIRELESS COOKER—the ideal adjunct to the regular kitchen stove or range. Every kitchen should contain a CHATHAM FIRELESS COOKER—the greatest labor-saving—fuel-saving—and trouble-saving device known in the preparation of the daily meals. Take any one of a hundred different Foods that are boiled—steamed or stewed. Heat them thoroughly on the regular range for a few minutes—then put them into an air-tight compartment of the CHATHAM FIRELESS COOKER—and they will continue to cook until thoroughly done, without any further time—trouble—or fuel. No danger of burning or boiling dry—no waste of the natural flavor of the food in the steam. All of the nutriment is retained in the food, which is cooked to a tenderness unattainable by any other method of cooking. These things you can do with a

Chatham Fireless Cooker

and I can PROVE it. Will you *let* me prove it—to YOU? Will you let me send you a CHATHAM FIRELESS COOKER by express, all charges prepaid—to use in your kitchen *for a month—FREE*—as a test—not only to prove every claim we make for it—but to prove to *your* entire satisfaction that it pleases *you* and that you wouldn't be without it under any circumstances.

I want to do *just that*—send you a CHATHAM FIRELESS COOKER on a thirty days' free test I want you to prepare your meals on it—see what a great fuel—time—and trouble-saver it is—see how convenient it is to simply heat the food and then put it away in the FIRELESS and leave it until thoroughly done—without another thought about it or any more attention to it.

Then—after the thirty days' test—if you're NOT pleased with it in every way—if it hasn't won its way into your favor and convinced you that you don't want to keep house without it—you can *send it back* to us—we'll pay all the transportation charges both ways and refund every cent of your money—so the test won't cost you a single penny.

The CHATHAM FIRELESS COOKER will pay for itself many times over in a year from the price of the fuel it saves—to say nothing of the time—trouble—and inconvenience. The CHATHAM FIRELESS COOKER does away with the unpleasantness of hot weather cooking. It gives the house-wife time to do other things instead of watching the food being cooked.

A hundred receipes of things to be cooked in the CHATHAM FIRELESS COOKER—at a saving of 75% in fuel—is sent with every COOKER. Many wholesome and dainty foods can be prepared with this Cooker at very little expense.

Will you send for my booklet "Cooking Without Fire"—together with price—selling plan—and a few other things every housewife wants to have? These are all FREE—and I'll send them to you for the asking. Just drop a postal card to-day and address me personally.

MANSON CAMPBELL, President

THE MANSON CAMPBELL Co., LIMITED

Dept. 97, CHATHAM, ONTARIO

Mention THE CANADIAN HORTICULTURIST when writing

Pineland Park Gardens

Grow the plants you are looking for, all the desirable hardy perennials, in choicest varieties. ¶ Order now for early fall planting that your plants may become well established before winter. ¶ Send for list of the plants and prices.

E. BYFIELD
Balmy Beach P.O.
Lock Box 96

Horticultural Literature

In the fall the fruit grower and gardener begins to think of his winter reading. With this in view, we present herewith a few of the books listed in our book catalog. We will send any of these books postage prepaid on receipt of price:

Title	Author	Price
Strawberry Culturist.	Andrew S. Fuller.	.25
Hedges, Windbreaks, Shelters and Line Fences.	E. P. Powell	.50
Landscape Gardening.	F. A. Waugh	.50
The Window Flower Garden.	Julius J. Hendrick	.50
New Rhubarb Culture.	J. E. Morse	.50
Cabbage, Caulillower, and Allied Vegetables.	C. L. Allen	.50
Asparagus.	F. M. Hexamer	.50
Tomato Culture.	W. W. Tracy	.50
The Practical Fruit Grower		.50
Dwarf Fruit Trees.	F. A. Waugh	.50
Field Notes on Apple Culture.	Prof. L. H. Bailey, Jr.	.75
Chorlton's Grape Growers' Guide.	Wm. Chorlton	75
Cider Maker's Handbook.	J. M. Trowbridge	$1.00
Barn Plans and Outbuildings		$1.00
Fumigation Methods.	W. G. Johnson	$1.00
Fungi and Fungicides.	Prof. C. M. Weed	$1.00
Home Floriculture.	Eben E. Rexford	$1.00
Peach Culture.	J. A. Fulton	$1.00
Small Fruit Culturist.	A. S. Fuller	$1.00
Fruit Harvesting, Storing, Marketing.	F. A. Waugh	$1.00
Grape Culturist.	A. S. Fuller	$1.50
The Fruit Garden.	P. Barry	$1.50
Plums and Plum Culture.	F. A. Waugh	$1.50
American Fruit Culturist.	Jno. J. Thomas	$2.50

Other books relating to horticulture are listed in our book catalog, which we will send free on request.—Address, Book Department, THE CANADIAN HORTICULTURIST, Toronto.

Ventilate the Barrels

Editor, CANADIAN HORTICULTURIST,—As an Englishman recently settled in Canada, I naturally find many new things to claim my attention. Having for the past 12 years had a personal interest in the fruit trade, more particularly at Covent Garden Market, London, I find great interest here in all matters pertaining to fruit and fruit culture.

I have been greatly impressed by the superiority of the apples grown and stored here over those exported in barrels to England with which I have been long familiar. Taking Ben Davis as an example, I find the skin clearer and better colored, and the flesh much more crisp, juicy and full flavored. The question naturally arises as to why this is so.

A comparison has suggested a reason for this difference, *i.e.*, there are now arriving in England each spring, commencing early in April and continuing for three months or more, large consignments of apples from Tasmania, and these are just perfect in fragrance, juiciness and flavor. By the side of these Canadian and American barrel apples make a decidedly poor show.

The Tasmanian apples are packed in ventilated boxes, each box containing about 40 pounds of fruit, and each apple is separately wrapped in paper. If barrels were also ventilated a marked improvement in quality would result therefrom. Prices might be enhanced thereby to the extent of half a dollar a barrel or even more. It is possible that a system of ventilation has been tried, but I have never come across a single example. It should at least be well worth a careful trial.—A. Knight, Marchmont.

THE CANADIAN HORTICULTURIST is the best and cheapest publication of the kind that I know of. There is no paper as good in Europe. May it have a great future.—Martin Winkler, Brighton, England.

APPLE BARREL STOCK

We still have a limited quantity of Apple Barrel Stock for sale for delivery this season. The stock is dry and standard specifications, as required by the Fruit Growers' Association

THE SUTHERLAND-INNES COMPANY
Limited
CHATHAM, ONT.

Mention The Canadian Horticulturist when writing

Underwood

At the Canadian National Exhibition we will have the best exhibit of typewriters ever shown in Canada. It will be of unusual interest to business men who wish to have their office equipment a little ahead of the times.

The special feature of the exhibit will be the Condensed Biller, a machine which is indispensable in a business with a large number of accounts; the Retail Bill and Charge machine; and the Unit Biller.

Be sure to come and see us and have our demonstrators put you in touch with these great systematizers of office work. They are economizers — of time, labor, money.

United Typewriter Co.
Limited
7-9 ADELAIDE STREET EAST, TORONTO

Mention The Canadian Horticulturist when writing.

Southern Ontario Apples

Ed. THE CANADIAN HORTICULTURIST: I read with interest the discussion in your paper on southern Ontario apples. Mr. James E. Johnson has covered the ground so thoroughly that there is little left for me to say, but I cannot understand Mr. McNeill's attitude in his letter in the July number. He said: "I quite agree with Mr. Johnson that if proper care is taken of these apples, they can be kept *fairly* well into the winter season." I find nothing in Mr. Johnson's letter to warrant that statement. He said plainly that he bought apples in Norfolk County in 1900 and 1902, and sold them in April and July the following years at one dollar a barrel more than he sold apples which were bought in another district. If Mr. McNeill would visit our markets in April, he would find quantities of any winter variety from ordinary cellars.

Mr. McNeill also said: "As a matter of fact, neither farmers nor apple buyers will go to the trouble of taking proper care of these apples." Does he wish us to believe that had these uncared-for apples been early fruit instead of winter varieties they would have sold better? However, he is mistaken in saying that the farmers will not take care of these apples. The fruit-growers of Norfolk are tilling, pruning and spraying their orchards. Last fall we realized more than the mere pittance of 50 cents a barrel for our third grade, which was delivered at our canning factories. We think it very unfair to have all our apples classed with these job lots. The Norfolk Fruit Growers' Association shipped 4,000 barrels last fall and expect to ship a great many more this fall of the finest sample ever barrelled in Ontario.

In the fall of 1906, a Brighton buyer came through this section very early, bought all the small orchards by the lump, and graded them firsts and seconds, a sample which we thought a shame and disgrace to the county, and far from the Fruit Marks Act. This same man is back again this year and has bought, in July, all the orchards that could be bought and paid higher prices. Now, if the Fruit Division wishes to improve the keeping quality of Southern Ontario apples, why not stir up the inspectors?

We sincerely hope that in a short time the Norfolk Fruit Growers' Association will extend over the whole county, shut out lump buyers, and prove the keeping qualities of our apples.—R. R. Waddle, County of Norfolk.

Gathering of Pomologists

Arrangements have been perfected whereby a congress of horticulturists will occur at Jamestown at the time or near the time of the American Pomological Society meeting, September 24-26. Immediately preceding it will occur the meeting of the Society for Horticultural Science and the Maryland State Horticultural Society. Immediately following, with the first session beginning on September 26, will occur the convention of the National Nut-Growers. This combination of horticultural events will assure the largest gathering of horticulturists the country has ever seen since the days of the World's Fair at Chicago.

The program of the Pomological Society is well prepared. In addition to the leaders in scientific research in pomology and the prominent orchardists, the Pomological Society will be favored with representatives from Great Britain and Europe. Delegates from the Royal Horticultural Society of England, the National Society of France and leading fruit growers and plantsmen of Germany are expected. All fruit growers who expect to visit Jamestown should plan to attend this great series of meetings. The heated period will be over at the time, and numerous attractions should conspire to make the occasion one of pleasure and profit. For information apply to John Craig, Ithaca, N.Y., secretary, or L. A. Goodman, Kansas City Mo. president.

ROOF for the Years to Come

Just one roof is GUARANTEED in writing to be good for 25 years and is really good for a hundred. That's a roof of

"OSHAWA" GALVANIZED STEEL SHINGLES

Put them on yourself—common sense and a hammer and snips does it. The building they cover is proof against lightning, fire, wind, rain and snow. They cost less because they're made better, and of better material. Write us and learn about ROOFING RIGHT. Address 205

The PEDLAR People (Est'd 1861).
Oshawa Montreal Ottawa Toronto London Winnipeg

IF YOU HAVE APPLES OR POULTRY TO CONSIGN

we can handle them for you to advantage. If apples are in car lots, write us and we can sell them for you f.o.b. your station

THE DAWSON COMMISSION CO. Limited
Cor. West Market and Colborne St.
TORONTO ——— ONTARIO

The

Herbert Raspberry

THE GREATEST YIELDER AND BEST ALL-ROUND RASPBERRY IN AMERICA TO-DAY

Central Experimental Farm, Ottawa, reports Herbert on average for three years, 1904-06 inclusive, yielded five times as much fruit as best other red on the market, and Ontario Government Experimenter reports Herbert yielded 592 oz. of fruit from a 20 ft. row, while Cuthbert yielded but 216 oz. and Marlboro 272 oz. It is larger and better then Cuthbert and absolutely hardy. We have the largest and best stock in Canada grown from originator's stock. Full descriptive circular and price on application. Write to the home and the headquarters of the Herbert.

THE OTTAWA NURSERIES
253 BELL STREET, OTTAWA

Growers of High-class Hardy Apple and Plum Trees, all Leading Varieties of Strawberries and other Small Fruits, Ornamental Trees, Shrubs, Paeonies and other Perennials, Crimson Rambler, Baby Rambler and other Roses, Bulbs, Seed Potatoes, etc., etc.

Mention The Canadian Horticulturist when writing

SPECIAL GLASS
FOR GREENHOUSES

Conservatories of The Dale Estate, Brampton, Ont.
Glass supplied by our Toronto Branch

GOOD QUALITY, FLAT, EVEN THICKNESS AND WELL CUT

PILKINGTON BROS.
Limited
Toronto, Montreal, Winnipeg, Vancouver

Mention The Canadian Horticulturist when writing.

You Can't Cut Out
A BOG SPAVIN or THOROUGHPIN, but
ABSORBINE

will clean them off, and you work the horse same time. Does not blister or remove the hair. Will tell you more if you write. $2.00 per bottle, delivered. Book 4-C free.

ABSORBINE, JR., for mankind, $1.00 bottle. Cures Varicose Veins, Varicocele, Hydrocele, Ruptured Muscles or Ligaments, Enlarged Glands, Allays Pain. Genuine mfd. only by

W. F YOUNG, P. D. F., 194 MONMOUTH ST.
SPRINGFIELD, MASS.
Canadian Agents, Lyman, Sons & Co., Montreal

DOOLITTLE HOSE COUPLERS
save your hose and your time. They do not exhaust your patience. Address
I. P. Doolittle 10 Alexander Street TORONTO

Orchids Now is the time to place your orders for Spring delivery of freshly imported Orchids. Our prices are very low, quality considered. Also large stock of established Orchids on hand

CARILLO & BALDWIN
SECAUCUS, N.J., U.S.A.

H. H. & S. BUDGETT & CO., LIMITED
BRISTOL, ENGLAND

Importers of Canadian Apples. Liberal allowances made to reputable shippers on bills of lading at Montreal. Write at once for further particulars regarding our method of disposing, and payment for first-class Canadian fruit.

GILSON MFG. CO. Ltd. Dept. 104 GUELPH, ONT.

The Foster Pottery Co.
LIMITED

MANUFACTURERS OF
Flower Pots
Azalea Pots
Fern and Bulb Pans
Straight Fern Pans
Seed Pans
Send for Price List and Catalogue

Main Street West, Hamilton, Ont.
Mention The Canadian Horticulturist when writing

EMPRESS PANSIES, the finest strain in existence. Sow in July and August. Packets of Seed post free, 50c., 75c. and $1.00.

DAFFODILS in 5, 10 or 15 different varieties (East Coast grown bulbs are the best). Delivered free by parcel post. 250 for $3.00, 500 for $5.50, 1,000 for $10.00.

Bulb Catalogue Post Free

WALSHAW & SON - The Nurseries
SCARBOROUGH, ENGLAND
Established two centuries

Horticulture at Macdonald

The orchards and gardens of the Horticultural Department of Macdonald College cover about 70 acres, of which 60 acres are cultivated crops at the present time. The orchard extends over about 25 acres, and contains the leading hardy apples, some cherries, pears and plums; the latter mostly of *Americana* origin. The commercial part of the orchard is so planted that upwards of 50 cultural and fertilizing experiments can be conducted across the orchard, using three trees of each variety for each experiment.

The variety test orchard of five acres is made up of four trees of a kind. This part of the orchard will doubtless present a more or less broken appearance, owing to some sorts under test not proving suitable or hardy.

The orchard is so laid out and roads so constructed that one driving along the roads can get full view of all the different varieties growing, and the various culture methods adopted.

At the present time the orchards are sown to peas, potatoes and beans. A strip of ground three feet at each side of the tree is kept cultivated, so that all of the trees have had similar treatment. No manure has yet been applied, except in the variety test orchard, which was mulched last winter with manure. The intention is to manure the whole orchard this fall, and next spring to start all culture and fertilizing experiments.

Twenty-one acres are in potato crop this year. The bulk of the area is from seed that was on the farm when purchased, and the name of the variety is doubtful. Those sorts in acre lots that are doing best are "Irish Cobbler," "Money Maker" and "Carman No. 1." The potatoes, from the seed of which we have not the correct name, have made an uneven growth, due partly to the seed not being properly matured last fall when dug, and partly to dry rot to which this variety is very susceptible. Care was taken to plant only good, disease-free seed, but with the greatest care some diseased ones are missed and get planted. It is the intention to discontinue this variety.

A series of interesting experiments are being conducted on plots one-third of an acre each, using the home-grown seed, by planting medium whole potatoes, small whole, medium cut in two through the seed end, large tubers cut to three eyes, and large tubers cut to two eyes. It is the intention in the future to follow this line of experiments, having in view the getting of information as to the best cultural and fertilizing methods, and the most practical way of selecting and planting the tubers.

The bugs have been unusually plentiful this season and the fact that they have had many showers, rendered it necessary to spray five times with Paris green. The season, too, has been exceptionally favorable to the development of blight, and although the vines have been sprayed three times with Bordeaux, still blight is noticeable, although very well under control. The indications are that only a medium crop will be harvested.

An area of over an acre is given up to squash, melons and pumpkins, which did well until a heavy wind-storm, accompanied with rain, and followed by bright, hot sun, blighted the leaves, giving the patch the appearance of being touched by a light frost.

Over an acre is devoted to turnips, one acre to carrots and one-third of an acre to beets and parsnips. The area in cabbage is about one and one-half acres, of which one acre is in early cabbage, the most of which has been marketed. The "Paris Market" is the earliest of the oxheart type, followed in a few days with the "Early Spring," the best early variety of the drumhead type. The late sorts are mostly Danish Roundhead. One acre is in onions, which are doing well.

Our neat little book catalog will be sent free on request.—THE CANADIAN HORTICULTURIST, 506-7-8 Manning Chambers, Toronto.

Warranted to Give Satisfaction.
Gombault's Caustic Balsam

Has Imitators But No Competitors.

A Safe, Speedy and Positive Cure for Curb, Splint, Sweeny, Capped Hock, Strained Tendons, Founder, Wind Puffs, and all lameness from Spavin, Ringbone and other bony tumors. Cures all skin diseases or Parasites. Thrush, Diphtheria. Removes all Bunches from Horses or Cattle.

As a Human Remedy for Rheumatism, Sprains, Sore Throat, etc., it is invaluable. Every bottle of Caustic Balsam sold is Warranted to give satisfaction. Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

The Lawrence-Williams Co., Toronto, Ont.

THE AMATEUR'S PRACTICAL GARDEN BOOK

The bases of this work are the notes written by C. E. Hunn, gardener to the horticultural department of Cornell University. The leading feature of these notes was to answer the many questions about the simplest garden operations which continually present themselves to the teacher of horticulture. The regular price of this valuable work is $1.00, but we will send it free to any reader who will forward us three new one year subscriptions to The Canadian Horticulturist. Address

The Canadian Horticulturist
506-7-8 Manning Chambers, Toronto

Imperial Bank
OF CANADA

Established 1875

Head Office . Toronto
Capital Authorized, $10,000,000.00
Capital Paid-up, . $4,835,000.00
Rest, - - $4,835,000.00

Savings Department at all Branches
Interest allowed on deposits of One Dollar and upwards and credited four times a year.

The Canadian Horticulturist

Vol. XXX OCTOBER, 1907 No. 10

Apple Growing in the Province of Quebec*

R. Brodie, Westmount, Quebec

ON the Island of Montreal, in the early days, when the Fameuse apple was supreme, followed closely by the Pomme Gris, Bourassa and Canada Reinette, one would realize as much for one barrel of Fameuse as for two of winter apples from Ontario. Pomme Gris were sold in half-barrels at fancy prices. The late Hon. E. Prudhomme sold, in one year, $7,000 worth of apples. These results stimulated a great many to go largely into apple growing, with the hope that in a few years their fortunes would be made, and that in their old age they would take their ease, but the old saying of the poet Burns came true: "The best laid schemes of mice and men gang aft aglee." When their young orchards came into bearing, the insects became numerous, especially the codling moth and plum curculio, with an occasional deluge of caterpillars; then followed the fungous disease known as the apple scab, which for a number of years ruined the crop.

Some farmers got discouraged and chopped down their orchards. All sorts of remedies were tried, until a French scientist, in Bordeaux, France, discovered what is now called the Bordeaux mixture. This remedy is now used in all the fruit-growing sections of the world. All up-to-date fruit growers have a good spraying outfit. Those who spray find that it pays.

The severe winters of 1903-4 were very hard on the orchards, in some sections killing out whole orchards. The introduction of Russian varieties of apples by the late Mr. Chas. Gibb, encouraged a great many in the colder parts of our country to grow these varieties with a great measure of success. There are seedlings and hybrids of these apples propagated at the Central Experimental Farm at Ottawa that will be a great boom to the country. This is the past with its successes and failures, its ups and downs, but altogether more success than failure. Those who come after us make use of our experience.

Now, what is the outlook for the future? Our worthy Premier, Sir Wilfrid Laurier, truly said that "The nineteenth century was for the United States, but the twentieth century is for Canada." What share shall the fruit growers of Quebec have in the prosperity of our vast Dominion? Can we share with Ontario and British Columbia in supplying the great provinces of the west with fruit that they can not grow?

With the shipping ports at our doors, and with improved transportation facilities, including cold storage and ventilating fans, we have access to the markets of Europe, but we, in the province of Quebec, are not taking advantage of these great opportunities. We are plodding along in the old rut, and are allowing the other provinces to get ahead of us. Some say that we cannot grow apples to a large extent in Quebec. It was an eye-opener to one of my friends from Ontario recently, when he saw the fruit-growing regions of the Island of Montreal, and of the Counties of Rouville, Chateauguay, Huntingdon, Vaudreuil and Lake of Two Mountains.

It was amusing, at the Dominion Conference of Fruit Growers, held in Ottawa two years ago, to hear the delegates from British Columbia and those from the Maritime Provinces vie with each other in praising their respective provinces in relation to fruit growing. The delegates from Quebec were too modest to do so. They are not given to blowing their own trumpets. They have erred to the other extreme and have not made known the fruitfulness of their own province. Apples, plums, cherries, pears, grapes, and even tobacco, can be grown successfully.

What is wanted is more care in the selection of locations and soils in setting out orchards. Trees are set out in land with cold, wet subsoils. They make a healthy growth for a few years, and, when the roots strike the cold bottom, they lose vigor and gradually die.

More care should be taken, also, in the selection of varieties. In the last report of the Quebec Pomological Society is a valuable list of varieties, prepared by a committee of the society, that should be distributed over our province.

Greater care should be taken in the preparation of insecticides and their applications. I know of a case where a man lost over $2,000 worth of apple trees. It was recommended by a lecturer to paint the trunks of the trees with good paint, so as to prevent the ravages of the borer. There was spirits of turpentine in the paint and it caused the damage.

More care should be taken in the packing and marketing of our apples. I strongly recommend cooperation. Every grower should read Mr. Alex. McNeill's (Chief, Fruit Division, Ottawa) Bulletin on cooperation, also his bulletin on packing apples in barrels and boxes. They are replete with valuable information. I would suggest that they be printed in the annual report of our society.

The great trouble in many orchards is that the trees are neglected, while much care and fertilization is given to other crops. Some men are looking for better varieties of apples to supplant the old kinds. If the old Fameuse could only speak, you would hear the echo from hill to hill: "Oh, for a better class of farmers to take care of us!"

THE RESOURCES OF THE PROVINCE

The province of Quebec is a land of boundless possibilities. It excels in the manufacture of butter and cheese, as well as in fruit production. It leads in the manufacture of maple products.

Of Much Interest

Please accept my congratulations on the attractive appearance and interesting contents of THE CANADIAN HORTICULTURIST.—S. W. Fletcher, Professor of Horticulture and Landscape Gardening, Michigan State Agricultural College.

* One of the papers read last week at the summer meeting of the Pomological and Fruit Growing Society of the Province of Quebec.

We have all kinds of minerals: asbestos can only be found in Quebec. Our forests and streams are the sportsman's paradise. We have the leading city in Canada, Montreal, with a population of nearly 500,000. It is a great consumer of fruit; two hundred carloads of California fruit is an average per year, the freight and duty being about $1,200 a car. About 150,000 bunches of bananas per year are used in Montreal. If tropical fruits can be shipped at such a cost to Montreal, why shouldn't the fruit grown at L'Islet find a ready market for an increased production of their valuable plums and cherries? Instead of being a frozen waste, with ice palaces for our amusement, as some of our American friends to the south believe, we have a land of great possibilities and resources.

A New Fruit Market Wanted in Toronto

THE Scott St. Fruit Market in Toronto is a market only in name. It is nothing more than a freight shed that has been turned over for the handling of fruits and vegetables. It is not a fit place in which to have fruit, as it is not large enough nor light enough. From all sources—from dealers, buyers and growers—complaints are heard. There is not enough room to handle fruit on ordinary days, and the congestion is unimaginable, unless seen, on rush days. It is not fair to the fruit grower nor to the man who buys his fruit. The loss to the fruit grower lies in the fact that the buyer has no chance to examine his fruit. To learn something about the state of affairs at the markets and to secure the opinions of some leading commission men, a representative of THE CANADIAN HORTICULTURIST recently secured the following information:

When Mr. Stronach, Sr., of Stronach & Sons, was approached, he said: 'There is scarcely need for asking questions on the subject. You have simply to look and you will see at once that the building is overcrowded. Most of the time during the fruit season we cannot move, the baskets are piled so high. Baskets of fruit should not be piled more than five high (that is ten baskets in the pile)."

Belknap & Son said that their business demands at least three times as much room as they have at the present. "We should have a proper market. This building is nothing more than a shed. There is not enough room, and the light is bad. The large firms are obliged to fill the passageways and the smaller ones are shut off from buyers." Mr. Jas. Bamford said that there should be twice as much floor space. He suggested that a few electric lights should be placed in the building to improve matters until a new building is secured.

"We have not half enough room," said White & Co. "We cannot handle stuff properly, as there is no place to display it. To properly display the fruit handled by our firm, we could use space equal to half the space of this building. From early morning till night we have fruit coming in, with no space to put it in. We are compelled to sell the stuff already inside before any more can be brought in. Sometimes we have to carry fruit back to the cars or put it outside on the platform so that we may have room enough to do business, and the fruit in the hot sun is injured. Much of our fruit cannot be seen unless the piles in front of it are climbed over."

The situation was referred to by Mr. D. Spence somewhat as follows: "This building is certainly not a proper place in which to handle fruit. Many mornings we have not enough room to walk around. The building is not large enough nor properly laid out. The city of Toronto should build a proper market, and it would give a revenue. The fruit men would be glad to pay to the city the same as they are now paying the Grand Trunk Railway for space in the market. They are paying half a cent for each eleven-quart basket, one-quarter of a cent for each six-quart basket, one cent for each twenty-four quart crate, and two cents each for barrels and sacks. If the city got this money, it could pay for a market in a short time. Every day between 30,000 and 40,000 packages pass through the market. The fruit trade is increasing rapidly, but the market space is not keeping pace in proportion. Sometimes stuff that comes in during the night will not be sold until two o'clock the next afternoon because of lack of space for displaying it. Occasionally we have to give stuff away to make room for later arrivals. I do not think that the wholesalers should go to the St. Lawrence Market. We should have a wholesale market away from the retail, and in connection with it there should be cold storage apartments." In speaking of transportaiton facilities, Mr. Spence said that the Dominion Express Company was the only company that was trying to do the right thing. They endeavor to handle fruit

A Scene at the Toronto Fruit Market on an Ordinary Day.
On rush days the congestion is even more pronounced. There is not room to handle fruit properly for sale or display.

with dispatch and properly. When cars arrive at times when it is impossible to transfer the fruit at once, it is kept in a shed and not dumped out in the rain and sun, as is done by the Canadian Express Company. Mr. Spence referred also to the unsatisfactory methods of handling fruit on the docks. There, packages from the Str. Lakeside and other boats are thrown around like sacks of potatoes.

Fruit is sold at a disadvantage in Toronto market. There is no room and poor light.

"We have no facilities for handling fruit, and no place to show it," said Vance & Co. "Already the fruit men have paid the Grand Trunk Railway ten times as much as the building is worth, and yet the company will not give us proper accommodation." "Not one man on the market has enough space," said Mr. H. W. Dawson. "The appearance of the market is a disgrace. Sometimes we have to crowd two or three shipments together, and it causes confusion. From the grower's standpoint the situation is bad, as his fruit does not receive the care and attention that it should and, as buyers cannot examine it properly, it does not always bring as good prices as it might. Sometimes the packages are piled so high that they get smashed and the fruit is injured. I think that the wholesale men should do business in the St. Lawrence Market. Some 25,000 packages are handled in this market every day." Messrs. H. J. Ash, McBride Bros., and others expressed similar opinions

From these interviews, it would seem that this market is not satisfactory to any person concerned Something should be done and done soon. The opinion is general that a new building is required, and that the city of Toronto should erect it. It is to be hoped that the corporation will see the need and remedy it.

Feed Orchard Trees with Proper Manures

As soon as the fruit harvest is past, growers will commence once more to think of the fall and winter care of their orchards. An important item in the work that should be performed is the application of manures and fertilizers. This is necessary to maintain the fertility of orchard soils. No orchard can continue to bear abundant crops of good quality year after year, unless the trees are fed with essential fertilizers. All up-to-date orchardists use fertilizing materials either applied directly to the soil or in the form of cover crops. Some of the methods practised by readers of THE CANADIAN HORTICULTURIST are as follows:

ORCHARD FERTILIZATION

The proprietor of the Auburn Orchards, Queenston, Ont., Mr. Walter O. Burgess, wrote: "I have given the matter of orchard fertilization a great deal of attention, particularly since my orchards have come into heavy bearing. I think highly of Marehment's manure and, where a heavy wood growth is desired, find it more desirable than ordinary barnyard manures, and prefer it, even at the high price it costs laid down in the orchards. I shall probably use several hundred tons of this manure during the coming season. I do not use manures on bearing orchards or vineyards, however, as I do not care to run the risk of introducing fungous troubles in this way.

"In feeding bearing orchards, I practise a system of green manuring, in conjunction with chemical manures. I put our orchards in crimson clover or hairy vetch, the end of July, plowing this cover crop under the following spring, and at once drilling in, with a fertilizer drill, 600 to 800 pounds of a home-made mixture of one and one-half parts of granulated bone, and one part muriate of potash, well mixed together. This routine is followed annually. It does not give us a superabundance of nitrogen, as with our system of intense cultivation, we can use large quantities of humus. As our light soils require a large quantity of nitrogen, we sometimes add a little nitrate of soda to the mixture. We are satisfied with home-mixed fertilizers. We are not only sure of the purity of the goods, but save considerable money, as we have no make-weight to pay for nor handle."

SPREAD MANURE BROADCAST

A well-known gardener in Clarkson,

Fruit Collections at Niagara District Exhibition.

These were well arranged. Spectators and judges could observe and examine from all sides. A few flowers added to the attractiveness of the display.

Ont., Mr. W. G. Horne, who is a frequent contributor to the columns of THE CANADIAN HORTICULTURIST, has this to say: "I have used Marchment's Sure Growth Compost for a number of years. It is hard to beat when properly mixed and composted. The liquid that he uses in mixing with the horse and cattle manure keeps those manures from heating too much, and fang-burning, and probably stops the escape of the ammonia contained in those manures which is one of our most valuable plant foods. Without question, this manure should be used broadcast; in fact, all manures should be used that way. The sooner after being drawn out to field that it is plowed under the better.

"I have had very little experience with commercial fertilizers. The best results I have had from them was from a brand stamped (H); it was horse flesh, from the Harris Co., of Toronto. I used it for a melon crop.

"The ideal way in fertilizing an apple orchard is to cultivate shallow in spring until foliage is well advanced, then mulch with good fresh horse manure. This is one of the best of manures, which when shaded by the trees, does not dry out quickly, and it gives protection for windfall apples."

CARE AND MANURE PAYS

A successful fruit grower in the Niagara District, Mr. S. H. Rittenhouse, Jordan Harbor, wrote: "My orchard experience is confined almost entirely to peaches. I practise thorough cultivation during May, June and July, use barnyard manure and Marchment's Sure Growth Compost, prune and spray, and have been fairly successful. I have been using some chemical fertilizers, but cannot give any intelligent information in their favor. I use manure sparingly on young orchards, but when the orchard comes in bearing I seed to cover crop about August 1 and apply manure during the early winter months. My ten-year-old orchard has a fair crop this season and the drouth has very little effect on it. This season's crop and results prove to me very conclusively that care and manure pay well in the peach orchard."

APPLY MANURE IN FALL

The experience of the well-known nurserymen, Brown Brothers Company, Nurserymen, Limited, is as follows: "We have used very little of the so-called commercial mixtures, but have confined ourselves almost entirely to barnyard manure and have used considerable quantities of Marchment's Sure Growth Compost. Our practice, as far as possible, is to plow this under in the fall, so that it is well rotted and incorporated in the ground when we come to planting in the spring. We use one good-sized car, about twenty tons to the acre. We find this more satisfactory on our soil than any commercial brand. It seems to remain in the soil longer, most of our soil being quite porous."

British Columbia Inspection

H. Gordon, Coldstream, Vernon, B.C.

The suggestion for the establishment of a station at Revelstoke specially for the inspection of nursery stock arriving from the east, has caused much discussion. There is no doubt that importers of eastern stock, as well as those who take the trouble to introduce new varieties from Europe, suffer considerable annoyance, and even loss, through the present somewhat clumsy arrangements. It might perhaps be fairer, and more patriotic, if *all* stock for the upper (eastern) part of British Columbia were inspected at some point like Revelstoke; the suggestion of discrimination in favor of Oregon and Washington stock would thus be dissipated. The question is, however, an economic one for the Government. Now that attention has been called to it it is possible that some improved arrangement may be made.

It must not be forgotten that there is an increasing number of nurseries within the province, and that the importation of stock by fruit growers is likely to decrease as these nurseries increase. The existing nurseries at the coast and elsewhere are developing rapidly and supplying admirable stock, well adapted to the different districts which they take care to study. It is probable that in the near future these nurseries will be the chief, or only, importers of stock—certainly they will always be the largest. The subject is likely, therefore, to become of less general concern, and the enterprising nurserymen may be trusted to look after their own and their clients' interests.

Boxes of Pears Wrapped and Packed for the Western Market.

Use Sand in Transplanting

It has always been understood by gardeners and planters that, when transplanting trees, it is necessary that the soil must be made to fit closely to their roots when in their new position. In later years, much has been said and written of firming the soil about potted plants and transplanted trees, all looking to the accomplishing of the same object, the close contact of roots and soil.

Recently another excellent suggestion has been made, a suggestion made because of noticing what a help it had been already to a great many; it is to use sand for the filling in around the roots of trees until all roots are covered.

There is no question of the sand's value; it does exactly what no other plan will do as well, namely, fill in completely all the air space about the roots, and fill them better than all the tramping, pounding, and watering otherwise found necessary to accomplish the same object. Dry earth is often recommended for filling in about the roots, and well recommended too, because being dry, it crumbles up nicely, better than wet soil will, but dry sand is far better than anything else.

Nurserymen took the hint of the value of sand from noticing its usefulness for heeling in purposes, as a sand heap is known to be a necessary adjunct to all packing houses, cold storage houses, and every building where plants are to be handled.

Let florists, landscape gardeners, and all others recognize the value of sand and use it in their operations, and they will have greater success than ever before in their future work. Its use is simply to fill in about the newly set tree until the roots are covered, then ordinary soil is used to fill the hole.

The Fruit Exhibits at the Canadian National Exhibition, Toronto

The most creditable feature was the educational exhibit of the Ontario Department of Agriculture which is to be seen in the foreground in the form of a square. Most of the general exhibits were disappointing, owing to peculiarities of the season. A few vases of flowers would have enlivened the tables. Further comments are published on page 262.

The Plum Glut This Year and Its Causes

Cecil C. Pettit, Fruitland, Ontario

THE handling of the plum crop of the present season has meant a heavy loss to a great many dealers and shippers, especially those who bought crops on an extensive scale. There are several reasons why this has been the case.

In the first place, the dealers paid too much to the grower. When the fruit came to be put on the market, by the time it reached the consumer the price was altogether too high for the retail market. While we, as growers, are in the business for what there is in it, I think that it will be quite generally admitted that the price paid this year was too high, especially for the shipper to realize anything on the deal. The average price paid this year are as follows: Lombards, fifty cents; fancy plums, seventy-five cents; and Reine Claude, from eighty cents to one dollar a basket. One can readily see that by the time the shipper would get his profit, the express company its slice, and the retailer his profit, the consumer would be paying pretty dear for a basket of plums. There were a great many more plums in the country than was at first supposed.

Another thing that worked against the business was the season, as it has been a peculiar one. In the first place, it was from two to three weeks late. Then it was so dry that plums seemed to ripen all at one time. In some orchards, Lombards were ready to pick all at once, and, of course, the growers rushed them off as fast as possible; as a consequence, the market was glutted and the bottom went out of it.

I heard Mr. E. D. Smith's foreman say that they took in 10,000 baskets of Lombards in one day. I also heard it said that one of the canning factories in this district threw out 10,000 baskets of Lombards in one day that they paid fifty cents a basket for. They were so far behind that the plums spoiled on their hands. Usually the Lombard season lasts from ten days to two weeks, but this season it was practically all over in about one week. This was largely due to the very dry season. Reine Claudes were ready before Lombards were finished. It seems that everything was working against the dealer, who had bought heavily.

Those growers who got fifty-five cents and sixty cents for Lombards and from seventy-five cents to one dollar for other varieties, were in luck at the expense of the shipper. Everything seems to go better when all make a little profit. It is far more encouraging for the dealers. Had the dealers paid the growers about forty cents for Lombards and sixty or seventy cents for other varieties, the plum crop could have been handled with a profit to all concerned. As it was, the dealers had to quote so high that the retailers could not handle the fruit in sufficiently large quantities to keep the markets cleaned up. It will be a long time before the dealers will get caught again, or before the grower will get such fancy prices for his plums as he did this year.

Pewaukee apples are inclined to drop early. They should be picked before they reach the stage of full maturity. I pick them about the same time as Blenheim Orange, a week or ten days before Snows. The Pewaukee is a wonderful bearer, and is a good cooker; but its appearance is not up to the mark. — W. G. Watson, Dixie, Ont.

Grapes Near Lake Huron

The engraving on the front cover of this issue illustrates a thirty-year reader of THE CANADIAN HORTICULTURIST, in the person of Mr. W. Warnock, picking grapes in his garden at Goderich, Ont., which is on the eastern shore of Lake Huron. Mr. Warnock has nearly forty

The Display of Grapes at the Niagara District Horticultural Exhibition was Excellent

varieties of grapes, many of which do well in that locality. In a recent letter to THE CANADIAN HORTICULTURIST Mr. Warnock states that he owes much of his success and pleasure in gardening and fruit growing to THE CANADIAN HORTICULTURIST. He wrote also: "I consider THE HORTICULTURIST indispensable to a complete and progressive life in horticulture. I have gained so much profit and pleasure through reading the experiences of correspondents and writers in THE CANADIAN HORTICULTURIST, that I feel it may interest others to learn of my experience in growing grapes at Goderich.

"My grapes are planted ten feet apart in rows. A post is placed between each vine and on these, five wires are strung, the first being ten inches from the ground. On the first wire are trained two arms five feet long, one in either direction. From this low-trained parent vine grow the fruit-bearing canes each year. As they grow, they are fastened to the upper wires. When the canes produce four or five leaves above the upper bunch of grapes, the top is nipped off. All lateral growth, also, is nipped. I allow one or two canes to grow however, without fruit and without being nipped. These are allowed to run over the top wire so as to mature leaves sufficient to recuperate the roots from the severe pruning and from over-bearing, which tends to shorten the life of the vine.

"The annual pruning is done as soon as the leaves fall. I prune all canes at a point one inch above the first good bud above the parent vine. In less favorite localities than Goderich, it would be necessary to lay down the parent vine and cover with earth before the ground freezes in the fall. The covering would be removed as soon as the ground thaws the following spring, and then the vine would have to be tied once more to the wires. At one time, I covered my vines, but during the past ten years, I have not done so, and have not lost any of them by winter freezing. The canes mature more perfectly near the lake than they do inland. The deep water of the lake tempers the climate of the shore and keeps off frosts. I have grown thirty-two ounce bunches on Wilder and Eaton vines, and twenty-six ounce bunches on Campbell's Early and Agawam. This year the fruit looks well, but is late in ripening."

Cranberries should be picked this month, after which the bog should be covered with water a foot deep to prevent the plants from heaving, to protect them from frost and to drown out bugs and insects. Cranberries should be grown more extensively in Canada.

Packing Apples in Boxes

A. McNeill, Chief, Fruit Division, Ottawa

Never attempt to fill a space with an apple decidedly smaller than the rest of the apples being packed. If the row cannot be tightly filled by turning the apples slightly, it can be assumed that the wrong style of pack has been chosen, and another must be tried. A partial exception to this rule is sometimes seen in the case of the diagonal pack, even in the work of good packers. It is one of the characteristics of a good packer that he almost instinctively chooses the right pack.

It sometimes seems necessary for beginners, and indeed for all but the most skilled, to deviate somewhat from the regular pack. For instance, in a four-tier box, straight pack, it is occasionally convenient to pack the second, or the second and third layers on the side, and the others on the end. Such expedients must be a confession of partial failure, and only to be tolerated till more skill is acquired.

In selecting a style of pack to suit a particular size of apple, the beginner will find it a great help to make a preliminary trial with a single row of apples across the end of the box, then from the bottom to the top, and lastly from end to end, maintaining the apples in the same position for the three dimensions.

The art of packing can only be learned by *packing*. It requires a deft hand and a well-trained eye, so that slight differences of size and shape may be recognized and utilized to fill the box, not only full of apples, but so tightly packed that the box may be put on end with lid off, and yet no apples fall out. This is rather a high standard, but one that should be aimed at by all who expect to become proficient in the art.

Apples in Boxes at Canadian National

Note the difference in length. The one in foreground was not legal in size and it received a prize.

Windfall apples should be destroyed or fed as soon as possible.

How to Have an Attractive Window in Winter

Wm. Hunt, Ontario Agricultural College, Guelph

NO class of pot plants gives more pleasure and better results for the time and labor expended on them than do a well-selected collection of autumn potted bulbs. They are particularly well suited for the

1. Pot Properly Filled With Soil

Showing depth of space allowed for water.

amateur flower lover as, by a little care in their culture, a succession of their beautiful fragrant blossoms can be had from Christmas until Easter, or even later in the season. Bulbs can be potted from September until the end of November, but early potted bulbs give best results. Bulbs of Roman hyacinths and early paper white narcissi potted at once can be had in flower by Christmas and New Year's.

SELECTION OF BULBS

To insure success in the pot culture of bulbs especially, not only must the species and varieties be carefully selected, but good, sound, firm bulbs of the best quality should be obtained. A soft, spongy, ill-shapen bulb is of little use to produce a flower spike under any conditions, more especially in pot culture. Cheap bulbs are usually very disappointing. Buy the best. Avoid mixed collections, as oftentimes many of the varieties in collections are useless, or not wanted. Named varieties give the best results, especially in Dutch hyacinths. A good selection of bulbs for a young beginner are: First, white Roman hyacinths; second, named Dutch hyacinths; and third, narcissi in variety. Tulips and crocus do not give as good results under pot culture as do hyacinths and narcissi.

ROMAN HYACINTHS

The white flowering variety of Roman hyacinth is the best. The other colors are not as pretty in form or as free or early flowering as the white, although the pink, rose, and blue shades make a pleasing variation in color effect. The colors should be potted separately, especially the white, as it usually flowers earlier than the other kinds. Roman hyacinths should be planted three in a five-inch pot, or more bulbs in a larger sized pot or box to be effective. Single bulbs can be planted in a five-inch pot, but unless the bulbs are extra good and large the effect is slim looking and disappointing. They look best grouped in larger pots, boxes, or jardinieres, so that there is about one and a half inches of space between the bulbs when set in the soil.

DUTCH HYACINTHS

The single flowering varieties of Dutch hyacinths usually give the best

2. Dutch Hyacinths Planted, but too Shallow

The top of the bulbs should have been one inch below the top of the pot.

results. The following list gives a good selection of single and double varieties: Single white, Grand Vedette, Grand Vanqueur, Mont Blanc; single red or rose, Gertrude, Moreno, Norma; single blue, Charles Dickens, Baron Von Thuyll, Queen of Blues; double white, Flevo, La Tour d'Avergne; double red or rose, Koh-i-Noor, Regina Victoria; double blue, Bloksberg, Laurens Koster.

The selection of Dutch hyacinths is largely a matter of taste in colors and shades, as all named varieties are usually of standard excellence. Dutch hyacinths look very well planted one bulb in the centre of a four or five-inch pot, and equally well in groups of three, five, or seven in bulb pans or jardinieres. There should be about two inches of space between each bulb if planted in groups.

NARCISSI IN VARIETY DO WELL IN POTS

Most varieties of the narcissi are suitable for pot culture. Among the double ones, the Von Sion, or what is generally known as the English daffodil, ranks first in value, *N. alba plena odorata* and *N. incomparabilis* being two other good kinds. The single or trumpet narcissi afford an almost endless selection of varieties. Among the best are Golden Spur, Horsfieldi, Princeps, Trumpet Major, *N. poeticus ornatus*. A pot or two of jonquils, a variety of narcissus, must not be omitted, their delicious fragrance giving them an extra value as a pot plant.

The bunch, or polyanthus narcissi, are also very acceptable, the early paper white being one of the best on account of its earliness. Potted early it can be had in flower easily at Christmas. Gloriosa is another variety of this type of narcissus. The Chinese sacred lily as figured in the cut is a favorite variety of the bunch narcissi. The foregoing will make a good selection to ensure a display from Christmas until Easter.

CULTURE AND CARE OF BULBS

The soil for the pot culture of bulbs does not need to be very rich in fertilizers. At the same time they will not give the best results in very poor soil. A potting compost of four parts well-rotted sod and one part barnyard

3. Top Growth of Bulbs

Showing stage at which it is advisable to bring them into the window.

manure or cow manure, with a one-eighth part of fine sand mixed in, makes a good compost for bulbs. This compost, however, is not always ready

to hand, unless perhaps it could be obtained of some florists, or at a seed store. In case it cannot be obtained, get some good, light, loamy garden soil, mix with this some pulverized dry cow

4. How to Handle a Pot of Bulbs

Showing position of hand when desiring to knock bulbs out of pot to examine roots.

manure, four parts of soil to one of manure. Or about one quart of fine bone meal to half a bushel of soil will make a good compost, or some of the commercial fertilizers sold at seed stores could be used to mix with the garden soil. If the soil is heavy, mix in a little fine, sharp sand as before recommended. The soil should be fairly dry when used for potting.

DRAINAGE

No broken crock, charcoal, and so on, need be used for bulbs. Care should be taken, however, that all boxes or pans used should have holes in the bottom sufficient for drainage.

HOW TO POT BULBS

First of all fill the pot or box from one-half to about two-thirds full—according to size of bulbs—with the soil, press the soil down slightly. Then place the bulbs in position at proper distances apart as before mentioned, so that the top or apex of the bulb is about an inch below the top of the pot or box. It may be necessary to take the bulbs out and add more soil, or remove some, perhaps, before the bulbs are placed at the proper depth. When this latter point is assured, fill the pots loosely full level to the brim, then press the soil fairly firm around the bulbs until the surface is about half an inch below the edge of the pot or box, leaving the surface quite level. Give the pots sufficient water to moisten well all the soil in the pots. Two waterings may be necessary for this purpose. Then stand the pots away in a cool, damp, dark place in a temperature of from forty to fifty degrees to secure good roots on the bulbs. The cellar floor, or a dark basement, or close cupboard or box will suit them for this purpose.

The pots should be buried in sand, sawdust, or dry soil to induce good root growth. This material should be packed closely around the pots and cover the pots to the depth of an inch or two. The pots seldom require water again until rooted, unless the place they are in is very hot and dry. Early potted bulbs can be placed out of doors and covered in the manner described, but must be protected from sharp frosts so that they can be got at easily to be brought indoors when rooted. The bulbs usually take from about four to five weeks to root well. To secure good roots to bulbs before bringing them into the window is absolutely necessary to ensure the best flowering results.

WHEN TO TAKE BULBS INTO WINDOW

After the pots have been in their dark cool quarters for four or five weeks, they can be examined. If their delicate white roots appear through the holes in the bottom of the pots the

5. Pot of Bulbs Nicely Rooted

Ready to be brought into window for flowering.

bulbs can be brought into the window. If no roots appear the pots can be taken out and carefully examined. This is best done by taking the pot in both hands as seen in cut No. 4, and then turning the pot upside down and striking the edge or rim of the pot on a solid bench or table, until the ball of earth and roots is removed, as seen in cut No. 5. If the bulbs are as well rooted as seen in this picture, the pot should be placed over the ball of earth while still in the position shown in cut No. 5, and then restore the pot with the plant to its proper position.

Examining the roots of bulbs is a delicate operation, and should be done as seldom as possible, as there is danger of breaking the ball of earth, and the roots, which latter would seriously injure, if not ruin, the bulbs altogether. The bulbs should be watered at once again after being examined to settle the earth around the roots. The bulbs can remain in their cool, dark quarters for several weeks after being rooted if desired, but must be brought into the window when the top growth has attained to a height of about two inches, or the flowering results will not likely be as good as they should be. Cut No. 3 gives a good idea as to the stage of top growth when it is advisable to bring the bulbs into the window. When brought into the window, place them in a not too sunny position, and see that the soil is kept well moist by regular and copious waterings, always giving enough water to moisten all the soil in the pot.

Bulbs grown in pots in the winter are seldom of any use for the following season, and it is better to purchase fresh bulbs every year. After flowering the bulbs can be dried off gradually. When the foliage is quite dead, no more water should be given them. Stand the pots away in a cool place until spring or summer, when the bulbs can be planted out in the border, where they may throw a few blossoms the next season, especially the narcissi. The hyacinths are not as likely to give good results in this way, especially the Roman hyacinths, as the latter are not hardy out of doors.

GROWING HYACINTHS IN GLASSES

Dutch hyacinths can be grown in glasses made specially for this purpose.

6. Chinese Sacred Lily

In glass bowl ready for the window.

The glasses should be filled with rain water so that when the bulb is placed

on the top of the glass the water barely touches the bottom of the bulb. The bulbs should be stood away in this position for a few weeks in a dark cellar or cupboard to root. When the vase or glass is fairly well filled with roots, the plants can be gradually introduced into the light to flower. The water should be changed occasionally when looking stagnant or dirty. Rain water or clean water that has been exposed to the sun and air is best for this purpose. The bulbs must not be removed from the vases after they are once rooted until the flowering is over. Good sound bulbs of best quality are absolutely necessary for success in the culture of hyacinths in glasses.

The Chinese sacred lily can be grown by placing a few gravel stones in a dish or saucer, and the saucer kept nearly filled with water. Set the bulb or bulbs firmly in the gravel. The bulbs should be placed in a cool, dark place to root in, the same as recommended before. When top growth has advanced as seen in cut No. 6, the bulbs should be brought into the window. These bulbs can also be grown in soil, sand, or moss successfully. Grown among pebbles in water in clear glass bowls or in Japanese bulb bowls, it is very interesting to watch the action of root development.

STORING BULBS

Bulbs not potted early in the season should be kept in a cool room or cellar until wanted so as to prevent them starting into top growth.

Lawn and Garden Hints for October

OCTOBER is the great bulb planting month. Prepare the beds at once. No matter how cold the locality in which you live, do not be afraid to plant bulbs. They will grow where weeds will grow. Set them three or four inches deep. Mulch the ground a little and they will come through all right, and bloom as soon as the snow is off. If you want a beautiful display next spring, select the best varieties and plant the bulbs now.

Canna roots should be dug before being frozen, and placed under the verandah or in a shed for a week or two to dry a little. A small quantity of earth should be left on the roots. Later place them in a temperature of about forty-five degrees, not lower, for winter.

Dahlia roots will keep in a cooler temperature than cannas. Thirty-five or forty degrees suits them. These will keep better in a more moist cellar or room than will canna roots. Wherever potatoes will keep through the winter in real good condition, dahlia roots can be preserved.

Go over the perennial plants, divide and transplant those that are overgrown. Every two or three years it is generally necessary to go over many of the perennials and weed out weak parts, and renew wherever necessary.

Renew the old lily clumps by taking the bulbs or offsets, divide them and re-plant this fall. Do this at once, so that they may become established before freezing weather.

The corms of gladioli should be dried off partially before being placed in the cellar or stored for the winter. A fairly dry cellar and a temperature of forty-five degrees will suit them. Be careful in digging, as the tops are easily pulled off. Loosen the soil well before pulling out.

It is a good plan to do many odd jobs in the fall that will save work in the spring and summer. Collect all stakes and other things of like nature. Store them in some good place where they can be ready for use next season. Rake and give the garden a good cleaning. Rake the leaves off the lawn and put them on your compost heap. If you have not provided a store of potting soil for use this winter, do so at once and be prepared for emergencies. Look after tools of various kinds. Clean them and put away where they can be found.

Beds for flowers next spring should be manured and spaded now so that the frost will have free access to the soil. It helps to pulverize it and to kill insect larvæ. Beds spaded in the fall will dry earlier and work sooner in the spring than otherwise.

A little forethought will save much regret and loss when frosts and winter freezing comes. Many plants will have to be protected. Have on hand a supply of spruce boughs, straw, or strawy manure, and gather fallen leaves for protection.

Prepare an earth mulch for the lawn. Take good, clean soil and well-rotted manure. Mix in equal proportions, turn occasionally and apply in November. A mulch of this kind will fertilize the soil, and is not so likely to contain weed seeds as ordinary stable manure.

Pot house bulbs and have a succession of flowers through the winter. Read the illustrated article on this subject on another page.

Air the house plants every nice day,

General View of the Niagara District Horticultural Exhibition

In the background were the groups of decorative plants. On the centre table in foreground, where they could be examined easily, were the general collections of fruit. They were not heaped in an out of the way corner as were the collections at the Canadian National. Note, also, the vases of flowers on the fruit tables; this arrangement added much to the general appearance of the exhibition.

and do not give them heat until necessary. Watch for insects and use insecticides. Spray well to get rid of red spider.

IN THE KITCHEN GARDEN

Beets, carrots, parsnips, turnips and winter radish should be taken out of the ground and stored. Some parsnips and salsify may be left in the ground all winter to be dug in the spring.

Rhubarb may be planted or the old patch renewed by digging the roots, dividing them and re-setting. Rhubarb may be grown in the house cellar for winter use. Dig some roots now, leave them on the surface of the ground or put them in a cold frame to freeze. Later, place them in the cellar on the floor or in a barrel, where they will produce tender and juicy stalks.

When the tops of asparagus are sufficiently dry for them to be broken by a harrow or rake, gather and burn. Work a top dressing of well-rotted stable manure into the soil.

Harvest squash, pumpkins and melons before danger of frost. In harvesting, leave an inch or so of the stem so as to prevent rot. Store in a dry place. Late celery should be harvested before the end of the month. It will stand a little frost without injury. Store either in trenches or in a cellar, preferably the latter in our climate.

If you want home-grown lettuce and radish for Christmas and New Year's, sow the seed now in a mild hot bed. Watch the young plants closely and protect against heavy frosts.

A winter supply of parsley may be had by transferring some of the roots from the field to a pot or box, and growing them in a light cellar or in a shed.

Mushroom beds may be made any time in fall. There is just enough uncertainty in the culture of this crop to make it of particular interest. Try a bed this fall. Watch it carefully, take photographs occasionally, and when the crop is all harvested, write a letter, stating your experience, to THE CANADIAN HORTICULTURIST.

If you contemplate changing the vegetable garden next season, early in October is the best time to begin the work. The ground should be cleared of all trash and vegetation. A good dressing of manure should be applied and plowed under, and the ground left in that condition until spring. Better results are had by changnig the location of most crops every year.

A Group of Rare and Valuable Plants at the Niagara District Exhibition
Exhibited by Mr. Roderick Cameron, Queen Victoria Park, Niagara Falls, Ont.

The Fall Care of June Roses

A. K. Goodman, Cayuga, Ontario

THE fall care of hardy roses is a vital question for the amateur flower lover, and one which he is apt to shirk; yet, the foundation for next season's success must be laid at this time. To obtain perfection in June roses, grow them in the open sunlight and in a clay soil. In November, spade around the bushes, working in well rotted-manure; cut off tips of canes to assist nature in maturing the wood (but do not prune till spring), then bank earth around each plant. When the ground is frozen solid, tie up the hardy varieties with straw. Leave this cover on till the cold winds have ceased in the spring, usually the first of April. The half-hardy kinds, such as Margaret Dickson, whose bloom is borne on the top of long stems, are better layered, then covered with straw and boards, care being taken not to smother the plant. Crimson Ramblers may be treated in the same way as the hardy varieties, but for profusion of bloom, old canes must be cut out after they have borne two years. The best results are obtained if all their canes are shortened to six feet. Dorothy Perkins is best pruned as one would prune a grape vine.

Outline your garden with rose hedges. Crimson Ramblers are the best and need the least care. If you only wish one hedge, a pretty idea is to start with six Crimson Ramblers, then six Dorothy Perkins, then six Baltimore Belles. These will shade from the darkest red to the palest shade of pink and make a very effective hedge for a garden.

Preservation of Seeds

From September on, seeds of trees and shrubs ripen rapidly and those who wish to obtain them for sowing need to watch the ripening so as to secure and preserve them in good condition. Of the various kinds, the greater number can be sown in autumn, all, in fact, excepting the coniferous sorts. On the other hand, it must not be forgotten, that where impracticable or undesirable to sow in autumn seeds can be preserved and sown in spring.

Taking maples, ash, tulip, poplar, linden and all similar sorts, to have them do their best they must not be kept in a dry state too long. Maples soon suffer if allowed to become dry; linden and tulip will keep a longer time without moisture. Magnolia seeds soon become worthless if allowed to dry. The safest way is to prepare the seed beds in early October, and then sow all the seeds when they ripen and fall from the tree. A week or two's delay in sowing them does not hurt them, but a longer period is very apt to do so.

When impossible to sow in the fall, the seeds should be kept in a slightly moist state and in a temperature that is low all winter. It is not essential that they be mixed with soil if the air is moist, but the conditions mentioned are better attained when in soil, and then it is not necessary that the air of the building be damp. It is quite essential that nut seeds be damp all winter. These do just as well sown in spring as in autumn if well preserved in damp material, as they but require to absorb a certain quantity of moisture to cause the shells to part. A great deal regarding the care of seeds has to be learned by practice.

Forcing Plants by Ether

J. E. Howitt, M.S., Ontario Agricultural College, Guelph

THE forcing of plants by means of ether and other anæsthetics is a subject which has attracted the attention of the commercial florist in France and Germany for a good many years. It is only within the last year or two, however, that the florists of Canada and the United States have had this method of forcing plants brought to their notice by articles that appeared in several American papers, giving accounts of the experiments on the use of ether in forcing plants, conducted in the department of horticulture at Cornell University. The results of these experiments would seem to indicate that ether might be profitably employed by the commercial florist to force many varieties of plants into bloom for the Christmas and Easter trade, and by gardeners who have charge of private greenhouses. A short account of the methods employed and of the results obtained from the experiments conducted at Cornell University should therefore be of interest to readers of THE CANADIAN HORTICULTURIST.

Lilacs Unetherized and Etherized
Bloom cut on December 26th

KINDS OF PLANTS

In the experiments carried on at Cornell the following kinds of plants were used: golden rod, golden glow, aquilegia, *Astilbe Japonica*, lilacs, deutzia, Japanese quince, rhododendron, rhubarb and asparagus. These plants were secured in the fall just as soon after cold weather commenced as possible. The herbaceous material, including rhubarb and asparagus, was placed in a cold frame and the roots covered with earth. The shrubs, rhododendrons, and azaleas were placed in a cool cellar as soon as they arrived from the nursery, the packing of earth around the roots being left intact. When the plants were required for use, they were brought out into a warmer room several hours before it was time to begin the experiment, in order that they might become comparatively dry before being placed in the etherization box.

METHOD OF WORK

The box in which the plants were etherized was an air-tight, galvanized iron box made especially for the purpose. The dimensions of the box were four feet six inches long by two feet three inches square on the end. Two trays were made to set in the box, so that three tiers of pots could be placed in it if necessary. These trays were made of heavy wire mesh. The wire mesh was used in order that the ether might permeate to every part of the box. In order to have the box as air tight as possible, the cover was so made that it would come down over the body of the box about five inches, and rest on a thickly felted ridge. When the box was closed the lid was firmly clamped down, two clamps being put on the front and the back of the box, and one on each end. With these precautions it was possible to get the box almost air tight.

HOW TO USE THE ETHER

The ether used in the experiments was the ordinary commercial sulphuric ether. In the first experiments the amount of ether used was four ounces for every fifty-six gallons of air in box. Later trials were made using fractions of this amount, as one-half, one-quarter, one-third, and so on. Various periods of etherization were tried, as was the effect of etherizing plants at different temperatures. Most of the plants were etherized before being potted, and when potted plants were etherized, if the earth in the pots appeared damp, a layer of dry sand was placed over it, as moisture absorbs ether and thus prevents its action. After the plants were placed in the box, the required amount of ether was poured on a ball of felt, which was placed on the top tray of the box, and the box shut and clamped down as quickly as possible. On the box being opened, the plants were left for several hours in order that they might be thoroughly aired before being potted and placed in the forcing house. When this was done, check plants of each variety were also placed in the forcing house, and both the etherized and check plants were given exactly the same treatment. Observations were made on these plants from day to day, and a record kept as to date of first indications of growth, date of opening of first leaf bud, date of full leaf, date of opening of first flower bud, date of full flower, and general health and vigor of plants.

Astilbe Japonica—Unetherized Plant on Left and Two Etherized Ones

THE WORK IS VALUABLE

The results obtained from these experiments, though variable, were on the whole very pronounced. The experiments with golden rod, asters, golden glow and aquilegia gave only nega-

tive results. On the other hand, etherized plants of *Astilbe Japonica* (varieties *Spiræa astilboides* and *S. compacta*) came into flower from ten to thirty days earlier than plants forced hy the ordinary methods. Etherized lilacs flowered from six to ten days sooner than those unetherized. One etherized Japanese quince flowered five days before the check plant, while another made a gain of seventeen days over the check plant. Rhododendrons failed entirely to respond to the action of the ether fumes, while etherized azaleas came into flower several days before the untreated plants. Good results were obtained from the experiments with rhubarb, the shoots of the etherized roots being ready to cut fully five days before those of the unetherized roots. Not only were the shoots of the etherized roots earlier than those of the unetherized, but there were also a great many more of them, the ether apparently causing every bud on the root-stock to produce a shoot.

The foregoing is just a brief summary of the results obtained from a long series of experiments carried on at Cornell on the use of ether in forcing plants. It should, however, be sufficient to bring before the Canadian florist the possibilities of the subject.

The Fragrant Freesia

Wm. Hunt, O.A.C., Guelph

No winter flowering bulb gives more acceptable results than do the pretty little bulbs of *Freesia refracta alba.* Plant at once about five or six good sound bulbs in a four or five inch pot in fairly good potting soil, soil that will grow geraniums will suit them. Use a little broken flower pot, coal cinders or gravel for drainage. Put the bulbs at equal distances apart, four around about half an inch from the inside of the pot in a circle, with one or two bulbs near the centre. The top of the bulbs should be about half an inch below the surface of the soil when potted, and the surface of the soil about half an inch below the top of the pot when the soil is pressed down firmly. Give water sufficient to moisten all the soil.

Place the pot in the window at once; do not bury them in the cellar as many have done, and had failures. Avoid over-watering the bulbs until growth and root action has well commenced, then more water may be given. Keep them in a sunny place in the window. Stake the plants to support them when the grassy-like growth is four or five inches in height, and wait patiently for several weeks for the flower stalk. Do not throw them out, as often has been done, because they were slow in flowering, thinking that the seedsmen had deceived them and given them grass plants. Wait for the flowers. If the bulbs were good, the flowers will come in due time, and will well repay for care and patience shown. When the bulbs have done flowering, water them less frequently until the growth has dried up yellow, when no more water should be given them. The pots should now be stood away in a cool, dry room, and the soil kept dry until next September, when the bulbs should be shaken out of the soil and the large ones repotted and treated as before.

When staking freesias put four or five small stakes about a foot in height around close to the inside of the pot. Around these tie tightly some fine twine or raffia four or five times around the stakes from top to bottom, crossing and re-crossing the twine between the stakes a few times across the pot to help support the tender growth. This is better than staking each stalk singly, besides giving the plants a much neater appearance. Small thin stakes should be used for this purpose.

Making Root Cuttings

The autumn is a better time to make root cuttings than spring. Many of the the small fruits, such as the dewberry, blackberry and raspberry, are readily increased in this way, as are many trees and shrubs.

The roots of the plants mentioned and those of any trees or shrubs of about the same habit of growth, should be cut into three-inch lengths, and if not time to set them outdoors, cover them up in a cool cellar, in damp sand, soil or moss, there to remain until the planting out time arrives. By making the cuttings in advance of planting them in nursery rows there is given time for the forming of a callus, and the developing of buds, hastening the appearance above ground of the growing shoots in spring. When setting out the roots, a shallow trench may be prepared and the roots spread in it.

Autumn Leaves

For decorating rooms in the home and public buildings autumn leaves may be used with advantage. Out along the water front and among the swamps you will find the brightest colored leaves, but your florists can supply you with autumn foliage. The cut-leaved oak and the red or sugar maples are the best.

Many sentimental people consider autumn leaves with a tinge of sadness and shudder at their use. Be careful of such. The foliage is distinctly appropriate for any form of decoration. For table decorative work, care should be taken not to use ill-smelling or rough autumn leaves; instead, use a few well-colored tips of *Ampelopsis Veitchii,* which can be had from the nurseries, from florists or from the walls where they are grown.

Growing Celery Easily

J. W. Rush, Humber Bay, Ont.

An experiment that I have conducted in growing celery without the use of barnyard manure, may be of interest to the readers of THE CANADIAN HORTICULTURIST. I have a piece of damp, sandy soil that inclines to the north and west. About May 20 I plow and harrow it finely, then mark the rows east and west, twelve inches apart. I use young plants about two inches high and well rooted. They are taken directly from the seed boxes and planted five inches apart in the row. Once a week they are hoed or raked until about July 15, when no more hoeing is needed, as the plants cover the ground. On the plot were 5,000 celery plants. I use about 150 pounds of Harris' Fertilizer applied at three different times and no other manure.

Some Well-Grown Celery

For forty years I have been growing celery, but have never had a better lot than was grown on this plot. The stocks were ready for market on September 1. When planted in the manner described, no boards are required for blanching.

There was no sign of rust or blight. I believe that the fertilizer, having been applied when the plants were growing, kept them moving, and aided them to grow away from the blight. The variety was Simmers' Self-blanching. About 175,000 to 200,000 stalks of celery can be grown per acre in this way. Why, then, do we use so much good land and so much manure in growing only about 25,000 of poor quality?

[NOTE.—Mr. Rush kindly sent two or three bunches of this celery to THE CANADIAN HORTICULTURIST. They were all large-sized and well blanched, crisp in texture and excellent in quality. The illustration on page 246 gives some idea of their appearance. They were a credit to Mr. Rush's skill as a gardener.—Editor.]

How the Famous Montreal Muskmelons Are Grown

R. Brodie, Westmount, Quebec

THE muskmelon is usually regarded as a southern crop. Only in recent years has the great Rocky Ford melon district divided honors with Maryland and Georgia. New England has been content to accept second or third place, or to go without home-grown melons altogether. Meanwhile, Montreal has made a reputation in melon-growing, which while not so much noised in the newspapers, is something to be fairly proud of.

While we grow fewer muskmelons than are grown in Rocky Ford, Colorado, we consider that we make up in quality, to some extent at least, what we fall short in quantity. Our first melons go to market about July 1, and bring $12 a dozen wholesale. In other words, we get more for a single melon than the southern growers usually get for an entire crate of thirty to forty-five. My neighbor says he has sold $3,000 worth of melons from three acres. It will be seen, however, from the following statement of our methods, that we put ourselves to much greater expense than the southern grower.

Seeds are sown the end of March in a hatbed, in four-inch pots, strawberry boxes, or inverted sod, buried in the earth in rows close together. Five melon seeds are planted to each pot, or box, and the seeds are buried about half an inch deep. When the plants come through the ground air is given by raising the sash when the sun shines during the day, closing and covering it at night to retain the heat and keep out the cold. By the end of April, the plants should be large enough to set out in the permanent hotbeds.

Any light soil, that will give a good crop of corn or potatoes, should grow melons. Trenches should be dug the previous autumn eighteen inches deep and thirty inches wide, and as long as required for the number of hotbed frames. The action of the frost through the winter pulverizes the soil, and puts it in good condition to receive the plants. These trenches are filled with hot manure trampled down firmly to within four inches of the surface, and covered with about eight or nine inches of soil. In growing melons on a large scale, we cover the manure with the plow, putting in little posts to mark the centre of the trench, making a ridge or bed about eight feet wide (a foot broader than the hotbed frame), raking this smoothly, leaving a slight rise on the middle of the ridge, and then putting on the hotbed frame and sash. In a day's time the soil should be warm enough to receive the plants from the nursery hotbed. They are watered freely, so that they may come easily from the pot. (I prefer the berry boxes, as they cost less and can be easily broken away from the roots.) One pot containing four stout plants is put to each sash. They are watered after planting and shaded with boards or matting for a few days, till the plants take root. Shallow cultivation is practised, for the roots extend near the surface as far as the vines above ground.

About the beginning of July, when the vines have filled up the frames and little melons appear the size of a cocoanut, the glass and frames should be removed, doing this gradually to harden up the plants. As soon as a good crop of fruit is formed, the end of the vines should be nipped off and all the growth sent into the melons. Some varieties, like the Hackensack, produce far too much vine and too few melons under this system of growing. One of the strong points in favor of the Montreal muskmelon is its productiveness, as well as good quality.

The melons should be turned every few days, care being taken not to injure the vine. Some growers, as soon as the melons are well netted, do purposely give the stem a twist to hasten ripening, spoiling the quality for the sake of having them earlier. When they are nearly full grown, pieces of wood or shingle should be put under each one to prevent rot and to keep the worms from them.

Sometimes good melons are grown by a somewhat simpler method. Holes are dug about one foot deep and eighteen inches in diameter, and these are filled with warm manure, which is well trampled down. Each hill is then covered with eight inches of soil, and is set with plants from the nursery hotbed. These hills are shaded for a few days with a box or something of the sort. Such melons ripen in September, but there is not the demand for them in the markets that there is during the sultry days of July.

Forcing Lettuce Under Glass

Eugene Davis, Grand Rapids, Michigan

THE soil mostly used in this section is a fine, light sand, finely manured. It gives good drainage, and never gets hard. Use the best seed obtainable. It should be water-cleaned, which gives a plump, heavy seed, and a more uniform crop. Ventilation should be given at all times when weather permits, but it is not well to let cold winds blow directly on the plant. Watering requires considerable judgment, especially during dull, cloudy weather. It is better to water in bright, clear weather and in the forenoon, if possible, so that the plants will dry off by night. Always water thoroughly when needed. Lettuce needs water when the soil taken in the hand will not pack but crumble.

For aphis or green fly, fumigate twice a week with tobacco stems, or use tobacco dust sprinkled on plants and ground. Use after each watering until the plants are one-third grown; if put on full-grown plants, it is difficult to wash off. It is better also not to fumigate when the crop is nearly ready to sell, as it will smell and taste of the tobacco. We carry a night temperature of forty-five to fifty degrees; day, sixty to seventy-five. Have a self-registering thermometer and thermostat with electric bell in the dwelling-house; it pays, as some firemen are careless about keeping an even temperature at night.

We get better results in starting the seed bed under glass even in August, when seed is sown for first crop. The plants are not so apt to get brown rooted or rusty, with which there has been very much trouble here in the

past three years. The rust is known locally as "shot-hole" rust, as the leaves are eaten full of holes. The crop is often completely ruined.

THE KIND OF FERTILIZER

For fertilizers, livery stable manure, partly rotted, or in a short condition, is used. If run through a manure spreader, it is put in a fine condition to mix with the soil. My houses are 29 by 280 feet, with double doors in each end, so that the soil and manure can be drawn in with a team and wagon. In preparing for a crop, two inches of the top soil is shovelled to one side, then four inches of manure is evenly spread, then it is thoroughly mixed with a horse and plow, levelled off, well watered, and the top soil replaced. Eight-inch boards are used for walks, which practically gives all the space for the crop. This is all the fertilizer used for the three crops usually grown during the season. The lettuce is planted in rows six inches each way, with double-rooted plants six weeks old.

The crop is usually ready for market in seven to eight weeks. It is sold by the pound, and packed in sugar barrels and bushel baskets paper lined. Competition is keen. Prices vary and usually average eight to twelve cents a pound for the season. For the past three years, instead of changing the soil, we have sterilized it with steam. It is less work, renews the soil, makes the crop grow faster, prevents damping off, kills weed and insects. It will pay anyone who is having trouble in growing lettuce to try it.

The Oldest and Largest Nursery Firm in Canada

AS was pointed out in the September issue, THE CANADIAN HORTICULTURIST is desirous of determining and making known the status of some of the leading nurseries of Canada. The immense nurseries at Fonthill, owned by Morris and Wellington, comprise over 800 acres of nursery land. This firm has been established for over thirty years and has done business over the same territory for that length of time, the business being conducted under the name of Stone & Wellington. This nursery is the largest in Canada and one of the largest in the world.

Office, Grafting House and Greenhouses at Fonthill Nurseries

AN ENTERPRISING CONCERN

The business conducted is enormous. Nursery stock of all kinds is shipped to points in Canada from Halifax to Vancouver. Many large orders are received, also, from European centres. That the packing of the nursery stock is done carefully, is evidenced by the fact that after being six to eight weeks on the way, the stock comes out of the boxes in perfect condition.

In the growing department, about 75 to 100 men receive constant employment. Although the grounds of the nurseries are of great extent, they are kept like a garden, free from weeds and attractive. By the liberal application of manures and by good cultivation, the stock is vigorous and thrifty, showing perfect healthiness and freedom from disease.

NEARLY THREE MILLION PLANTS

In the nurseries, where are growing fruit trees of all kinds, ornamentals, shrubs, evergreens (of which this firm has the largest collection in Canada), small fruits, roses, and an immense block of herbaceous stock, there are probably between two and three million plants of all ages.

HOW THE STOCK IS SOLD

The stock is sold, through the retail department at Toronto, by an army of over 300 travellers, who send in their orders weekly. By selling in this way and by receiving frequent reports from their agents, the firm avoids selling anything that they cannot furnish. They always know just where they stand, and orders are not taken for stock that is not available. Were canvassers not employed, this check could not be kept,

In This Block There are 100,000 Peach Trees One Year Old

In the foreground stands Mr. E. Morris, senior partner, who looks after the growing of all the stock.

as direct orders come at the last of the season, and in that way, many varieties would be sold out while, perhaps, better ones are left in stock.

REPRESENTATIVES ARE RELIABLE

Reliable men with good references always can obtain employment. The firm is particular, however, in the matter of employing agents. Good references regarding the character and reliability of the applicants are necessary. While most of the stock is sold by canvassers, the firm will sell direct to customers who desire it. An up-to-date catalogue is furnished upon application. Stock is shipped twice yearly, in October and in April. During the shipping season, fully 200 men are employed in the different departments, under skilled foremen, in billing out and shipping the stock.

NOVELTIES ARE TESTED

All the latest and best novelties are grown in these nurseries. In fruits, any new variety with supposed merit is obtained immediately and grafts are put in the trees growing in their testing orchard, so that such new varieties may be tested before selling. The public secures the benefit of these tests. In the apple testing section of this orchard alone, there are over 600 distinct varieties. Those that are worth fruiting and of being disseminated, are offered for sale to the public.

A Block of 60,000 Two-Year Plum Trees

A Block of 75,000 Two-Year Cherry Trees

STOCK IS HEALTHY

A special point in respect to the stock at the Fonthill Nurseries is the healthiness of the trees. The climate at Fonthill, which is situated between the two great lakes, Ontario and Erie, is tempered by the influence of these large bodies of water. The lakes so modify the temperature in winter, that the young trees are not damaged by freezing and are free from black heart. It is well known that black heart is caused by young trees being frozen in winter, by pruning at the wrong season, or by too close pruning, which is often done by smaller concerns who are not posted in the business. The writer was offered $100 if he could find a single tree in the nursery with black heart. It is the heavy fall of snow, which is protective in its influence, and the situation, tempered by the water, that makes the trees so healthy. The climate in winter is just cold enough to keep the trees thoroughly dormant throughout the season, and to prevent the premature swelling of buds, which otherwise might be frozen, and not cold enough to cause severe freezing and injury.

HARDY VARIETIES

Of late years Stone & Wellington have

A Block of 100,000 Norway Spruce, Twice Transplanted, Eighteen to Twenty-Four Inches High

A Block of 50,000 Standard Pear Trees, all Leading Varieties, Two-Years Old

devoted a great deal of attention to the growing of hardy varieties suitable for Manitoba and the west and have been very successful in that respect. They have catered also to the wants of the British Columbia fruit growers, and their trees have given the greatest of satisfaction. In the western prairies, many farmers are planting trees. This firm is growing millions of seedlings which farmers can buy at low rates and soon obtain wind breaks, which will aid them very materially in being able to grow froits.

TREES INSPECTED THREE TIMES

All the trees, shrubs and plants in the nursery are carefully examined for insect pests and the greatest care is exercised. Before a tree is shipped, it passes through the hands of three expert inspectors, whose business it is to make sure that nothing but first-class trees are sent to customers.

The representative of THE CANADIAN HORTICULTURIST was much impressed by the size and appearance of this great nursery. A few photographs were taken, but they do not convey a proper idea of the full extent of the establishment. Some of them are reproduced on these pages and give some idea of the magnitude of the operations of this long established and well-known firm.

300,000 Three-Year-Old Apple Trees as Good as Earth Can Produce

In This Block are 150,000 Gooseberry Plants

Harvesting Potatoes

When harvesting potatoes, dig only as many at one time as can be dried and gathered before quitting; this applies to each half of the day. Where possible pick the tubers as soon as they are dry. The length of the drying period depends on the weather and on the nature of the soil. In dry weather, potatoes in sandy soil should be ready in an hour; in moist clay, two or three hours may be necessary. Never leave the tubers on the ground overnight. Frost is liable to destroy a large number.

Another point in the harvesting of potatoes is the advisability of grading while picking. Two classes at least should be made, gathering the best ones first and leaving the smaller size until later. The most satisfactory package is the bushel box or crate. These are easily distributed, filled and loaded; and they also lessen the possibilty of bruising. Every gardener should have a number of these where such crops as potatoes are grown.

This month will probably be the last chance you will have to build an ice house. The most important thing is perfect drainage. The house should either be on an elevation, or must have tile laid to carry off the water formed by the melting ice.

OUR QUESTION AND ANSWER DEPARTMENT

Readers of The Horticulturist are Invited to Submit Questions on any Phase of Horticultural Work

Legal Weight of Apples

What is the standard allowance in weight for a bushel of apples?—T. B., Forest, Ont.

We do not know of any standard weight per bushel for apples in this country. In the state of Wisconsin, the standard weight is fifty-seven pounds, and in Kentucky only twenty-four pounds. By this, you will see that there is a great difference between legal weights in the various localities. In Iowa, Massachusetts, Michigan, Missouri and Ohio, the weight is 48 pounds; New Jersey, 50; Vermont, 46, and so on. It is difficult to decide upon a definite weight per bushel for apples, as the various varieties are of different specific gravity. Stark will average about 56 pounds; Kings and Spitz, 44; Baldwin and Roxbury Russet, 50; Ben Davis, 47; Greening, 52; Golden Russet, 53; and Spy, 46.

Varieties of Plums

Kindly suggest varieties of plums for planting on a fruit farm in this locality?—A. J. C., Listowel, Ont.

The following varieties probably would give best satisfaction: Lombard, Yellow Egg, Quackenboss, Arch Duke, Coe's Golden Drop, Reine Claude and a few Red June for early. If you wish to plant a few prunes, we would suggest Prune D'Agen.

Enquiry from Finland

As the cultivation of gooseberries in our country is in great danger of destruction by the fungous disease, *Sphærotheca mors uvæ*, and as we have been informed that you cultivate species of gooseberries that are not disposed to this disease, I request that you name some of the varieties, hardy enough for a cold climate, and mention also where they can be obtained.—B. W. Heikel, State Pomologist, Helsingfors, Finland.

The American varieties of gooseberries are practically free from the disease mentioned. The leading varieties are Downing, Pearl, and Red Jacket. They may be secured from the nursery firms that advertise in THE CANADIAN HORTICULTURIST.

Cropping an Orchard

What crops may be grown in young orchards, without evil results?—C. M., Sherbrooke, Que.

Only those crops whose treatment will improve the physical condition of the soil and will aid in conserving moisture should be grown in young orchards. Grain, hay and succulent crops should not be grown, although it is claimed that corn will to a certain extent shade and protect newly-set trees from winds. Hoed crops and small fruits are the most satisfactory. Sod should not be allowed in an orchard except when desired to check the vigor of trees that are making too much wood at the expense of fruit, although, in localities where there is an excess of humidity in the atmosphere and soil, orchards in sod have been found to give good results.

Value of Hellebore

Has hellebore any particular value over other poisons as an insecticide?—L. R., Barrie, Ont.

The particular value of hellebore lies in the fact that it is less poisonous than most other compounds used as insecticides, and that on being exposed to the air, it soon loses its strength. For this reason it is safe to use it on fruits that are almost mature and ready for market.

Fruit Tree Borers

What is the difference between the peach tree borer and the apple tree borer?—B. T., Essex, Ont.

The adult of the peach tree borer is a moth, while that of the apple tree borer is a beetle. The larva or the borer itself that works on the peach and plum has eight pairs of legs, while that of the apple has three pairs. This is an easy way to distinguish between them. The peach tree borer works from the crown of the tree downwards into the roots. There are two apple tree borers, one of them works in the trunk near the ground, the other higher up and sometimes in the larger branches.

Multiplying Ivies

How can the various ivies be propagated and at what time of the year?—R. T., Vancouver, B.C.

The Virginia creeper or woodbine, *Ampelopsis quinquefolia*, may be propagated by hardwood cuttings taken in the fall. The Boston or Japan ivy, *Ampelopsis Veitchii*, is best grown from seeds sown under glass or outdoors as soon as ripe. It may be propagated also by cuttings of green wood taken in spring, and inserted where they may receive a gentle bottom heat. The English ivy, *Hedera Helix*, may be propagated at any time during the growing season by cuttings of half-ripened wood.

Germination of Seeds

How can the germination of seeds, whose coats are more or less impervious to water, be hastened?—L. A., St. Stephen, N.B.

The germination of seeds whose coats are only fairly hard may be hastened by soaking in cold or lukewarm water. Others more hard may be softened by pouring over them scalding water, but they should not be boiled, as sometimes has been recommended. With large nut-like seeds, the practice of stratification is necessary. This consists in exposing the seeds, mixed with earth, to frost and moisture for a time. Bony seeds are sometimes filed or bored to hasten germination. At some of the experiment stations, machines are kept for this purpose.

A Tomato Pest

I had some trouble with a worm destroying my tomatoes in a greenhouse. It looked like a cut-worm, being dark brown in color. What is it?—A. J. C., Listowel, Ont.

The worm that attacked your tomatoes was probably the variegated cut-worm, *Peridroma saucia*. It was very abundant and destructive this year. During the day they are buried about one inch deep in the earth, usually near the roots of the plants they are attacking. The best remedy for them in greenhouses, or on small areas, is to scatter poisoned bran among the plants. The formula for making this is as follows: Mix one pound of Paris green with fifty pounds of bran, and moisten well with water sweetened by black strap or sugar. Be sure that the Paris green is well mixed, as it tends to sink to the bottom. —Answered by L. Cæsar, O.A.C., Guelph.

New Tomato Pest

I have heard of a new worm that eats the tomato, fruit and leaves. What is the best way to fight them?—A. J. C., Listowel, Ont.

I have heard of but not seen the so-called "New Tomato Worm," so cannot tell what it is until I see a specimen. Probably the best treatment for limited areas will be to dust with pyrethrum powder. Take one pound of pyrethrum powder, and mix with four pounds of flour, keep in a closed vessel for twenty-four hours, and then dust over the plants. This is not poisonous to human beings, and hence will be safe to use on your tomatoes.—Answered by L. Cæsar, O.A.C., Guelph.

The Canadian Horticulturist

Published by The Horticultural Publishing Company, Limited

The Only Horticultural Magazine in the Dominion

Official Organ of British Columbia, Ontario, Quebec and Prince Edward Island Fruit Growers' Associations and of the Ontario Vegetable Growers' Association

H. Bronson Cowan, Managing Editor and Business Manager
A. B. Cutting, B.S.A., Horticultural Editor
W. G. Rook, Advertising Manager
Garrett Wall, Circulation Manager

1. The Canadian Horticulturist is published on the 25th day of the month preceding date of issue.

2. Subscription Price in Canada and Great Britain 50 cents a year, three years $1.20. For United States and local subscriptions in Toronto, 25c. extra a year is charged for postage. Foreign subscriptions, $1.00 a year, including postage.

3. Remittances should be made by Post Office or Money Express Order, or Registered Letter. Postage Stamps accepted for amounts less than $1.00.

4. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

5. Advertising Rates quoted on application. Copy received up to the 18th. Responsible representatives wanted in towns and cities.

6. Articles and Illustrations for publication will be thankfully received by the editor.

Circulation Statement

Since the subscription price of The Canadian Horticulturist was reduced from $1.00 to 50 cents a year, the circulation has grown rapidly. The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with July, 1907. The figures given are exclusive of sample and spoiled copies and of papers sent to advertisers. Some months, including the sample copies, from 8,000 to 10,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruit, flowers or vegetables.

August, 1906	4,220
September 1906	4,300
October, 1906	4,330
November 1906	4,775
December 1906	4,814
January 1907	4,947
February 1907	5,520
March 1907	6,380
April 1907	6,460
May 1907	6,620
June 1907	6,780
July 1907	6,920
Total for the year	66,066
Average each issue	5,505
August, 1907	6,880
September, 1907	7,078

Sworn detailed statements will be mailed upon application.

Our Protective Policy

We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason to believe that any of our advertisers are unreliable, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant we will expose them through the columns of the paper. Thus, we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefits of this Protective Policy is that you include in all your letters to advertisers the words "I saw your ad. in The Canadian Horticulturist." Complaints should be sent to us as soon as possible after reason for dissatisfaction has been found.

Communications should be addressed:

THE CANADIAN HORTICULTURIST,
506-7-8 Manning Chambers,
TORONTO, CANADA

EDITORIAL

EXHIBITORS SHOULD PROTEST

It is becoming more evident each year that the main object of continuing the Canadian National Exhibition is to make money. The original purpose for which the show was organized, namely, the display of the agricultural products of the country, is being sacrificed for gain. The excuse given by the management is that the horticultural hall costs more for attendants, and so on, than any other building, and it must produce a revenue. The cost for labor during the show for the building should not warrant the management endeavoring to overcome this expenditure by permitting booths to obstruct the building, spoil the display and decrease the space for the proper exhibiting of large groups and individual plants, merely for the sake of a revenue. The exhibitors were unanimous in their protest against the curtailing of the space and what promises to become a nuisance.

A few improvements could be made in the building that were impossible to see before the building had been in actual use. More light from the roof would show up the exhibits to better advantage. Although the prize list has been slightly altered, there is still room for originality. There is nothing so attractive to the public as something that they cannot see every day. The chairman of the horticultural committee deserves great credit for introducing some new features. It would have shown interest on the part of others on the committee if they had attended and given their support and assistance in placing the exhibits. Greater enthusiasm on the part of the committee should be productive of new ideas. Such could make the horticultural hall a leading attraction, instead of being a place for fakirs and the selling of pink lemonade.

DISGRACEFUL FACILITIES

The fruit dealers of Toronto and the growers who supply them have strong reason for the dissatisfaction they feel with the treatment afforded them by the Grand Trunk Railway and the Canadian Express Company. The fruit market in Toronto, which belongs to the former company, is a disgrace, and the manner of handling fruit practised by both companies is abominable. While the trouble is not altogether a new one, it has been accentuated during the past few weeks. The difficulty lies in the fact that the fruit growers of Ontario and their representatives in the city are naturally animated by a desire to secure the most rapid and most satisfactory connection between the growers and the general public. In the accomplishment of this desire they find that the two companies mentioned are not helpful factors.

There is much delay in the matter of unloading fruit after the cars arrive at Toronto. The staff employed by the Canadian Express Company is not large enough or capable. Sometimes fruit that arrives early in the morning is not unloaded until that evening. Where from twenty-five to thirty men ought to be actively engaged in handling the 30,000 packages of fruit that pass through the Toronto market on an average day, on one occasion recently, one foreman with three assistants were engaged in the work. It is not surprising, therefore, to hear the retail dealers in the city complaining of the poor condition in which they receive fruit. Under the conditions mentioned, it is impossible to deliver fruit early and in a fresh condition.

It is charged, also, that the fruit is not properly sorted when taken from the cars, that great difficulty arises sometimes in straightening things out, and that not a little is injured in transmission. The company does not forget, however to present its bills of charges, and often before the cars are unloaded and the contents checked off.

The fruit market itself is unfit for the proper handling and display of fruit. It is altogether too small. There is not enough room for the immense quantities of fruits that pass through it. While the fruit industry is increasing rapidly and continually, the Grand Trunk Railway is not providing facilities in keeping with the requirements. Sometimes the packages must be piled twenty-five and thirty high to make enough room in which to move about. It is impossible, even on ordinary days, and much less on rush days, for buyers to examine fruit. It will be seen, therefore, that not only do the dealers suffer but also the men who grow the fruit. Thousands of dollars are lost each season to the fruit growers of Ontario through inadequate facilities afforded the commission men to whom they consign.

In view of this fact, it would seem that something should be done to remedy the situation. The city council of Toronto has been approached on different occasions by the dealers and asked to build a suitable market. Promise after promise has been made but nothing has been done. While it would cost a few thousand dollars to erect a suitable building, the expense would be mitigated by the fees collected. Arrangements should be made to have a joint deputation of fruit growers and dealers wait on the city council. This deputation should be sufficiently large and influential to command immediate attention and thus ensure something being done to improve the prevailing unsatisfactory conditions.

A USEFUL ORGANIZATION

The horticultural societies of Ontario will be acting in their own best interests if they rally to the support of the Ontario Horticultural Association. This association was organized with the object of assisting the individual horticultural societies of the province. Its success to date has been remarkable.

It was through the efforts of those enthusiasts who first interested themselves in the organization of the Association, that the need for a new act relating to horticultural societies, and for a larger grant for the work, was first drawn to the attention of the department of agriculture. Later, when the department was considering the new act governing horticultural societies, it discussed its main provisions with the officers of the Horticultural Association, who thus were enabled to make suggestions that since have proven to be of great value to horticultural societies. More recently the Provincial Association has succeeded in securing a government grant to assist its work and in inducing the department of agriculture to print annual reports relating to the work of the horticultural societies of the province. The first report of this nature has been distributed recently. Its contents should be of great interest to the members, and particularly to the officers of horticultural societies.

It is hardly to be expected that any society in the province will refuse to identify itself with the Horticultural Association, the membership fee of which is only $2.00. The next convention of the Association will be held in Toronto at the time of The Ontario Horticultural Exhibition. An outline of the subjects to be discussed is published elsewhere in this issue. It is to be hoped that the horticultural societies of Ontario will be well represented at the meeting.

The action taken by the Board of Control for Toronto, in expressing themselves in favor of cooperating with the Dominion Government in the appointment of a local fruit inspector for Toronto, and paying part of the expense, is commendable. Such inspection is necessary on account of the increased export of fruit which leaves the poorer grades in the domestic market.

So much trash is displayed in the store windows of the city and offered for sale that the wisdom of making seizures, where deemed advisable in the public interest, is evident. The best class of the trade also would receive protection from less scrupulous competitors. In their own interests, the other large cities in Canada should follow the example of Toronto in this respect.

Reports indicate that there will be a fairly large quantity of very small apples, otherwise fairly good. Shippers should not forget that there is no lowering of the standard and that the size for No. 1 or No. 2 is not the medium size as grown in 1907, but the medium size in an ordinary season. There will, therefore, be a large number of apples that will be marked No. 2, or even No. 3, for no other reason than that they are too small to qualify for a higher grade. The fruit inspectors have already recommended the prosecution of some shippers who have offended in this particular.

Visitors at the Canadian National Exhibition on Fruit Growers' Day were greatly disappointed in not being permitted to see the fruit at close quarters. The judging was not completed until late in the afternoon, and the spectators were "roped off." The judging of the packages should have been done on the preceding day, and the plate fruit early that morning. An effort should be made next year to have the judging completed in time.

THE CANADIAN HORTICULTURIST recently was favored with some specimens of dwarf or Spanish figs, grown by Mr. J. A. Wallace, Beechwood Cemetery, Ottawa. They were perfect in size and appearance and were of excellent quality. THE CANADIAN HORTICULTURIST would be pleased to receive contributions of rare fruits, flowers or vegetables and new varieties for mention in our columns.

While the new horticultural hall at the Canadian National Exhibition is a building to be proud of, it has one or two defects. One of them was betrayed by the heavy rains that fell during one or two days near the close of the exhibition. The building leaked, and damaged the appearance of some of the exhibits. It is to be hoped that the fault will be remedied before exhibition time next year

Recently THE CANADIAN HORTICULTURIST was favored with a basket of fruit and a few stocks of celery, both from Mr. J. W. Rush, of Humber Bay, Ont. In the basket were a large number of Burbank plums, clean and of large size, as well as some excellent cherries. The celery was about the best that has ever come under our observation.

During the past few weeks a number of unsigned letters have been received by THE CANADIAN HORTICULTURIST. Some of them should have been answered long ago, but we do not know to whom to address the replies. Readers and enquirers, who may think that they have been neglected, are requested to bring the matter to our attention and to sign their names.

We regret to announce that we are unable to publish in this issue the diagram of a hardy herbaceous border that was promised. It will appear in the November number, and will be of much value to amateur gardeners.

Several park experts from the United States, who attended the convention of the American Association of Park Superintendents in Toronto this fall, expressed considerable surprise that the sidewalks in Toronto were placed next the curb instead of leaving a space for grass between the walk and the roadway. A better effect, they said, would be produced by placing them along the property line. This is a point worthy of consideration in all towns and cities where new walks are to be made, or old ones re-laid. The more green to be seen on a city street, the more attractive it is.

To Improve Varieties

Editor, THE CANADIAN HORTICULTURIST: We desire to get into touch, through the columns of your excellent paper, with the apple growers of the province with the aim in view of inaugurating a plan whereby we hope to effect improvement in the varieties of apples now most largely grown. A great number of attempts are being made in this country and elsewhere with this object in mind, but so far as we are aware no one has yet applied the principle of rigid selection of parent stock in any of the tree fruits because of the difficulty experienced in securing accurate observations on large numbers of individual trees. Much of value has been accomplished and will continue to be achieved through hybridization, but variations in trees of the same variety are often so pronounced as to seem to give ground for hope of improvement through straight selection. Several apple growers in the province are already following the practice of cutting all buds and scions used for propagation purposes from selected trees. There is no question as to the wisdom of the practice and the proposed plan is simply an enlargement of the same idea.

We desire apple growers all over the province who have trees of exceptional merit to register the same with us. We will record all individuals by number and will require accurate annual reports on such important features as age, bearing habit, vigor of tree, yield, color and quality of fruit, method of culture practised and the number of trees under observation. Blank forms for use in recording "performance records" will be furnished and need not be at all complicated in nature. We desire particularly to record those trees already known to possess merit and request that no specimens be entered without having been under observation for a short time at least. The varieties chosen are Spy, Baldwin, Ben Davis, Greening and Snow, but no restriction is placed on any variety that may be entered in sufficient numbers to justify competition.

We trust that we may have the assistance of the fruit growers in carrying out the project. We believe that when, in a few years, we are able to point out the very best trees in the country, we shall have obtained information of direct value both to the growers and to the apple-loving public in general.—H. L. Hutt, Department of Horticulture, O.A.C., Guelph.

Ontario Hort'l Association

At a meeting of the executive committee of the Ontario Horticultural Association held in Toronto during September, it was decided to hold a two days' convention of the association this year, in Toronto, on Nov. 14-15, at the time of the Ontario Horticultural Exhibition. The following program was prepared:

Thursday afternoon—President's address, W. B. Burgoyne, St. Catharines; Statement of the Secretary-Treasurer. Address on "The Work of our Horticultural Societies," by Supt. J. L. Wilson, of Toronto. Address, "How Shall we Spend our Funds to the Best Advantage?" Mr. Hamilton, London; Discussion led by Rev. A. H. Scott, of Perth. Address, "Best Methods of Increasing the Membership of Horticultural Societies," A. McNee, Windsor, Ont.; Discussion led by Dr. J. S. McCallum, of Smith's Falls, Ont. Address, "What Can a Horticultural Society do to Promote Civic Improvement?" Major H. J. Snelgrove, of Cobourg, Ont.; Discussion led by Rev. P. C. L. Harris, of Guelph, Ont.

Friday morning—Election of officers; Address "Should the Horticultural Act be Amended?" H. B. Cowan, of Toronto Address "The Selection and Classification of Flowers," John Cavers, Oakville; Discussion led by W. T. Macoun, of Ottawa; Unfinished business.

Friday afternoon—Address "Perennials, New and Old," Roderick Cameron, Niagara Falls South, Ont.; Discussion led by E. Byfield, Toronto. Address, "The Growing of Peonies," by Hon. F. R. Latchford, Ottawa; Discussion led by John Cavers, of Oakville Address, "Fruit that Can be Grown in a City Lot, 66 x 99 ft.," A. McNeill, Chief of Fruit Division, Ottawa; Discussion led by R. B. White, Ottawa. Address, "Orchid Growing by Amateurs," J. M. Dickson, Hamilton. Most of the persons whose names appear on the program have agreed to speak on the subjects mentioned.

It was decided to make a special effort to interest the horticultural societies of the province in the work of the Ontario Horticultural Association. An attempt will be made to organize new horticultural societies in centres where none exist, such as Brockville, Cornwall, Oshawa, and Chatham. The first annual report of the association has been distributed recently to the members of horticultural societies. Free copies may be had upon application to the Department of Agriculture, Toronto.

Ontario Hort'l Exhibition

The interest manifested already in the Ontario Horticultural Exhibition, which will be held in Toronto Nov. 12-16, is much greater than that shown up to this date in any previous year. The railway companies have notified the management of the exhibition that they will run half-rate excursions from all parts of Ontario, to the exhibition, on Wednesday and Thursday, Nov. 13-14. People desiring to attend on other days may leave home as early as Friday, Nov. 8, and by securing railway certificates, will be able to return free as late as Nov. 20, irrespective of the number in attendance. They will have to have their certificates vised at the exhibition before being given a free return ticket.

This year a new rule has been adopted regarding the making of exhibits. A member of either the fruit, vegetable, or honey growers' associations, can make exhibits in any section of the exhibition. It will not be necessary for him to join any of the other associations.

Several first-class bands and orchestras have been engaged with the object of making the musical features of the exhibition as attractive as possible. The Ontario Horticultural Association and Ontario Vegetable Growers' Association have both completed interesting programs for their annual conventions, which will be held in Toronto at the time of the exhibition. Outlines of these programs appear elsewhere in this issue. The conventions of the Fruit Growers' Association and of the Bee Keepers' Association promise to be equally interesting.

At the Canadian National Exhibition some excellent asters were shown. Specimens of the J. H. Locke strain secured all the first prizes, and were a credit to the producer and the growers.

The Guelph branch of the Ontario Vegetable Growers' Association, which was organized this year, held its first annual picnic recently at Riverside Park, near Guelph. There was a representative attendance of the vegetable growers of the vicinity. The afternoon and the early part of the evening was spent in games and athletic contests. Keen interest was taken in some races for which prizes of books relating to vegetable growing were offered by the Ontario Vegetable Growers' Association.

Vegetable Crop Situation Has Improved

THE vegetable crop outlook in Ontario, as reported by the crop correspondents of the Ontario Vegetable Growers' Association, is much better than it was last month. Most crops look fairly well as the situation has been greatly improved by rains. The crop with most gardeners will yield more than was anticipated as good growth is being made. Since the rains started, the growth has been steady and sure. Prices in general have been good.

The reports indicate that the cabbage crop will be good. The same may be said of cauliflowers except in the districts around Toronto and Kingston. Celery promises to yield a good crop of excellent quality. Tomatoes turned out a little better than was expected, but the crop on the whole has been very light; prices have been high. The onion crop will not be up to much; in some sections it will be fair, but in others the reports are discouraging. In the district around Scotland, where large quantities usually are grown, there will be only two-thirds of a crop and it of fair quality. There has been an excellent crop of melons. Squash and cucumbers are scarce. Sweet corn is less than half a crop. Late beans are fair to plentiful. Table roots, such as carrots, beets, parsnips and turnips, are good in all localities except that the parsnip crop around Ottawa will be short, and that turnips are a failure in the Kingston district. There has been some improvement in the potato outlook, but on the whole the crop will be only fair.

LAMBTON COUNTY

Sarnia—Vegetables of all kinds show a marked improvement this month, the weather conditions being good for rapid growth. Late cabbage and cauliflower are looking well. Carrots, beets and parsnips show the effects of showery weather and will be a good crop. Melons are better than was expected, although late in ripening. Seed onions are green yet, but will be a good crop if they mature. Late potatoes are green but give promise of a good crop. Tomatoes are better than was expected and in full swing now with good prices, 50 cents a bushel. Celery is growing well and is being marketed. The outlook for the gardener is much better than it was a month ago.—W. A. Broughton.

KENT COUNTY

Chatham—The recent rains have greatly improved the vegetable crop outlook. Celery, which has been standing still for the past six weeks, has now commenced to make fair growth and will be a good crop. Carrots and parsnips, good; onions, fair, but not ripening good. Tomatoes ripened slowly but are fairly plentiful. They are selling at from 75 cents to $1 a bushel. —Fred. Collins.

BRANTFORD COUNTY

Scotland—The onion crop will only be a two-thirds one and the quality not so good as last season. They will not be so good a color on account of being late. Potatoes are a poor crop. Cauliflowers are beginning to head and promise a good crop. Cucumbers are through bearing and were a very poor yield. Melons are a good crop and are being marketed freely. Tomatoes scarce and high in price.—F. Smith.

ESSEX COUNTY

Leamington—Since the August drouth, we have had splendid rains and everything looks nice and fresh. Tomatoes are ripening nicely and while the crop is light, the sample is good. The canning factory is now running full blast. Melons are about all harvested, although some late fields are just coming on nicely. The blight has taken all the vines of Osage, Hackensack and some Rocky Fords, but some other varieties are still showing splendid foliage and will likely ripen the crop in good shape. Osage sell at $1.25 a half-bushel crate; Hackensack, $1 a crate; Rocky Fords, 40 cents a 16-quart basket. Celery is doing well, some very good stock now being marketed. Potatoes show results of drouth and are not a very good sample and the prospect is for a light crop. Onions, in some cases, are being shipped now, price not stated. Field root crops are good in favorable locations; on higher lands they will now come on faster since fall rains have come. The season on the whole has been fair.—E. E. Adams.

WELLAND COUNTY

Niagara Falls South—The rains of the past couple of weeks have improved things greatly. Late beans are just making their appearance on the market. Cauliflowers, cabbage, and Swede turnips, vegetables usually badly affected by aphis in this locality, are remarkably free from pest and of first-class quality. Late celery continues to improve and will be a good crop. Roots are growing fast and may yet be an average crop. Onions continue to grow and although late will be a good size. Medium and late corn is maturing fast and of fair quality though scarce. The usual amount of fall spinach, lettuce and radish looks fine and healthy. Late potatoes are still growing, and in some cases exceptional yields will be obtained, but the average will be small owing to late planting. Late tomatoes cannot be a large crop under any circumstances. They failed to set well, and what did set were late and are rotting. Early ones are about done and the demand is good. Late squash are a failure owing to drouth and blight. Cucumbers are scarce; melons, getting plentiful; also peppers. Field mushrooms have come in, and are a feature of the local markets.—Thos. R. Stokes.

HALTON COUNTY

Burlington—Late tomatoes are ripening very slowly owing to the recent wet spell, although the rains have somewhat improved the outlook for a fair crop. Late potatoes have improved very little since last report. Melons are nearly done, the crop being an average one with good prices. Cauliflowers and late cabbage are promising well. Onions have not been helped any by the recent rains, and will be somewhat small. Egg plants and peppers are nearly done. The crop has been fair with good prices.—J. A. Lindley.

PEEL COUNTY

Clarkson—Potatoes have looked most promising all season, but the continued dry weather has told on them heavily. The crop will be short on account of having to discount so many small ones. Where land was moist the crop is good, approximately speaking. There will be a good half crop of late sweet corn, if good. Onions will be a medium crop. Carrots, beets, and turnips are very good. Late melons are a good crop. Late tomatoes are a good crop but are ripening slowly. The tomato worm has been very bad this year, and has done considerable damage.—W. G. Horne.

TORONTO DISTRICT

Humber Bay.—Since the rains during the early part of the month vegetables have made fine growth. Cauliflowers are heading well, as are also cabbages. The latter will likely be a short crop. Both green and yellow beans are plentiful. Lettuce is doing well. Spinach is also doing well but there is a slow sale as yet. Brussels sprouts will be a good crop. Quite a large quantity is being grown this year. The tomatoes are a light crop and are spotted badly. The high tariff on melons has made them plentiful and very cheap. The late varieties of celery looked very poor a few months ago, but is looking well now. All roots are doing well.—Jos. Rush.

KINGSTON DISTRICT

Portsmouth—The general outlook for vegetables in this district is not the most encouraging, although the recent showers have made a great difference to the late cauliflowers and late cabbage, which at one time did not look at all promising. The crop with most gardeners will yield more than was anticipated. The late celery will be far below the average and, with some, the crop will scarcely pay to harvest. Turnips are a failure; very small and the green fly troublesome. Tomatoes have been slow in coming in, which resulted in their being considerable quantities shipped in from places where they were more plentiful. Onions are small as well as short.—John Watts.

OTTAWA DISTRICT

Tomatoes are coming in fast. Corn has come in so irregular that the price has kept good; it is more plentiful now. Celery is plentiful and good quality. Winter celery is reputed good. Onions are a good crop. Carrots turnips, and beets are good and plentiful. Cauliflowers are plentiful and of good quality. Parsnips are short of the usual quantity. Winter cabbage is making up fast, and if weather permits will be a heavy crop. Pickling onions are plentiful. Cucumbers are scarce. The drought held back all crops, but since the rain started the growth, it has been steady and sure.—T. Mockett.

Vegetable Growers' Program

A meeting of the executive committee of the Ontario Vegetable Growers' Association was held in Toronto during September. It was reported that the Ontario Government will issue shortly a bulletin relating to the canning factories of the province. This bulletin will show the number of factories, their location, the principal varieties of vegetables and fruit that they can, the prices that have been paid the growers for their products, and other similar information. It was decided not to attempt to organize the vegetable growers who supply vegetables to the canning factories until after this bulletin is in circulation.

The secretary was instructed to write to Hon. Wm. Paterson, to ascertain what steps the Dominion Government has taken regarding the appointment of an appraiser whose duty it will be to see that vegetables are not imported into Canada at prices less than their real value.

It was decided to hold the next annual convention of the association in Toronto on November 14 and 15 at the time of the Ontario Horticultural Exhibition. A meeting of the full board of directors will be held on Wednesday, November 13. The following program was prepared: Thursday morning—Address, "Greenhouse Construction for Vegetable Growers," by J. D. Fraser, of Leamington, Ont; Discussion opened by T. Delworth, of Weston, and A. McMeans, of Guelph, Ont. Address, "Greenhouse Management," by Serles Brothers, of Toledo, Ohio; Discussion by L. Cole, London.

Thursday Afternoon—Address, "Melon Culture," by T. J. Gorman, of Montreal; Discussion led by W. A. Emery, of Aldershot. Address, "The Growing of Tomatoes," by W. C. McCalla, of St. Catharines, Ont.; Discussion led by George Awrey, of Hamilton, Ont.

Friday Morning.—Address, "The Marketing of Vegetable Crops," by F. Williams, of Ottawa South; Discussion led by George Syme, Jr., Carleton West. Address, "Asparagus Growing," by A. McInnis, of London, Ont.; Discussion led by John McKay, of Doncaster

Friday Afternoon—Address, "Insects that Trouble Vegetable Growers and How to Combat Them," by Dr. James Fletcher, of the Experimental Farm, Ottawa. Address, "Fertilizers for Vegetable Crops," by a speaker to be secured from the staff of the Agricultural College at St. Anne de Bellevue, Que.

Please find enclosed $1 for one new subscription and my own renewal. THE CANADIAN HORTICULTURIST is the best paper that I take. I always speak a good word for it whenever possible.—H. W. Bumstead, Meaford, Ont.

Shall We Dip or Fumigate?

This is a question that has been puzzling nurserymen, orchardists, farmers and tree-planters considerably of recent years, therefore any new light on this subject we are quite sure will be greatly appreciated by our readers. While this problem has not yet been completely solved, there have been great strides made in determining the value of dipping in comparison with fumigating. Fumigation is very effective when properly done, but it has some disadvantages in that few are capable of doing the work without some injury to the trees. Another objection is that it must be done at a time when the nurseryman is extremely busy.

Of recent years we have heard more or less of the success resulting from the dipping method. It would seem from the experience of those who have been dipping their trees instead of fumigating them that it is an efficient operation.

In a recent bulletin issued by the American Horticultural Distributing Co., Martinsburg, W. Va., on the subject of "Dipping vs. Fumigation," we find several quotations from prominent horticulturists, and owing to the fact that they are practical illustrations on this topic, we have reprinted some of them herewith. It seems to us that these "experience lessons" are what our readers are looking for. Theory on subjects of this kind is all right, but actual demonstration beats it. This kind of information is worth reproducing, as it leaves nothing to guess at. If you have been in doubt as to the advisability of dipping, perhaps some of these letters will help you out, two of which we take pleasure in reprinting herewith

"Mr. S. F. Wallbridge, Belleville, Ont., wrote: Dipping trees I believe far preferable to fumigation. If the experts at the experiment farm consider it just as effective it should be at once adopted in lieu of fumigation."

"Mr. A. N. Brown, of Wyoming, Del., one of the earliest advocates of dipping nursery stock and who has made careful observation, says that for five years he has dipped his stock before planting. He has also dipped and given instructions for dipping for many large planters in a number of states. In no case has there been any injury reported, but on the other hand the most satisfactory results have been obtained."

We believe that the bulletin sent out by the American Horticultural Distributing Co. is one of the best articles on this question that we have had occasion to read, and that it is a practical talk on this subject. We recommend that our readers write to them for a copy, as we understand that it will be mailed free to any orchardist in Canada. They have kindly loaned us the illustration accompanying this article, which shows both methods of dipping, the one where the bodies only of the trees are dipped, and the other where both root and body are dipped. In writing for the above bulletin kindly mention THE CANADIAN HORTICULTURIST

Mr. C. Ernest Woolverton, landscape gardener, who has been laying out and beautifying many parks, cemeteries and private grounds in western Ontario, has made engagements in the United States for the winter. He will be located at Boston until further notice.

One of the most interesting and best prepared catalogs we have received is that of M. J. Henry, Vancouver, B.C., in which are listed all kinds of seeds, plants and trees for growing in the amateur garden or in commercial plantations. That Mr. Henry's stock is well grown and gives excellent satisfaction is evidenced by a number of testimonials that we have seen. Among them, one from Mr. H. Grosvenor, Trail, B.C., states: "I received the trees safely, well packed and in good condition. Am pleased to say that they are doing well."

Canadian Grown Stock for Canadian People

Now is the best time to place your orders for Nursery stock "*True to Name.*" Hundreds of thousands of *Apple Trees* and *Plums, Pears, Peaches* and *Cherries* in unlimited quantities.

I offer for spring delivery the following specialties:

HERBERT RASPBERRY—The new sensational red raspberry.

PERFECTION CURRANT—One of the finest red currants that has ever been put on the market.

HYBRID APPLES (Baccata Crosses)—The only apples guaranteed to stand the Northwest winters unharmed.

Also numerous specialties in the ornamental line—Frau Karl Druschki Rose, Baby Rambler Rose and a general assortment of Standard and Bush Roses, all field grown.

A FEW VACANCIES FOR AGENTS WITH FIRST-CLASS CREDENTIALS

E. D. SMITH

Helderleigh Nurseries (Established ¼ Century Acreage, 800 Acres) Winona, Ontario

The Photograph is a branch of Hybrid Apples grown on a young tree in Helderleigh Nurseries.

Mention The Canadian Horticulturist when writing

The Apple Situation and Crop Reports

DURING the past few weeks there has been very little change in the apple situation. Only a small proportion of the fruit has changed hands. Those in possession of the quantities that go to make up the apple crop of Ontario, feeling they have a good thing, are holding at a high figure.

American dealers and buyers are quite numerous. Although they complain of prices being too high, yet, in spite of the high duty and heavy freight, many purchases have been made. The prices paid will, after adding the expenses and a few profits, make rather expensive eating for Uncle Sam.

Some of the cooperative associations have sold at a good price. The others are holding out stiffly, with every prospect of realizing the price they demand. Here and there, some men, who are in possession of a little more of what the apple men call "nerve," are buying out orchards and "packs," allowing to first purchasers handsome profits. All kinds of deals are reported. One dealer sold out his pack and afterward re-bought it at an increased cost of $500.

Hundreds of barrels of immature fruit are being hurried forward. Baldwins were picked as early as Sept. 15, and lacked almost every characteristic of typical Canadian Baldwins, except in name. This is unfortunate, especially this season which is more than two weeks late. Even the fall varieties that are being shipped are small and lacking in finish. The crowding forward of such stuff is a bad forerunner on a market where later we expect to place the bulk of our high-priced fruit.

The weather has been very warm for shipping. Inspector Carey examined a car on Sept. 21, and found decayed specimens in every barrel that he opened. This was an ordinary box car, and when closed Mr. Carey says the temperature inside was nearly 100 degrees. The shipper of this car need not be surprised to hear that the fruit arrived in bad condition.

The two chief features of the apple business are the securing and purchasing of the fruit, and on the other hand, the handling and marking. No matter how good the demand, or how badly the fruit is wanted, it must be properly packed and placed on the market in good condition or failure is sure to follow. The following fruit crop reports have been received from correspondents of THE CANADIAN HORTICULTURIST:

KINGS COUNTY, P.E.I.

Aitken's Ferry.—The plum crop is irregular, some varieties being heavily loaded while others have only a few scattered fruits. In apples, Transparent, Duchess, Wealthy and other summer and fall varieties are a full crop, while winter apples, with the exception of Ben Davis, are a total failure. There are very few pear trees in this locality, and these with a poor crop.—D. J. Stewart.

YARMOUTH COUNTY, N.S.

Carlton.—The apple crop is a failure in this county. It will not average over 25% of other years.—A. J. Dryden

HUNTINGDON COUNTY, QUE.

Maritana—Lake fruit is doing well. Fameuse are clean and sound, and even in size, although three weeks behind. Spys and Kings are developing well, although not as heavy a crop as Fameuse. Flemish Beauty pears are fine and trees are heavily loaded. I have several kinds of superior crabs, heavily loaded and sound. Alexander and St. Lawrence are doing well although late. I have been offered $2 on the tree but prefer selling right out.—Wm. G. Parham.

MONTREAL DISTRICT

Westmount—Apples are a fair crop and clean, but a little undersized. Prices are good for good stock.—R. Brodie.

CHATEAUGUAY COUNTY, QUE.

Chateauguay Basin—The apple crop is about one-third of a usual crop. They are good in all respects except in size. Prices range from $1.25 to $2 for fruit on the trees. One orchard sold for the last named price for all grades.—Peter Reid.

LINCOLN COUNTY, ONT.

Jordan Harbor—Peaches are light. St. Johns sell for $1.25 in the orchard. Plums are light; apples, light, selling from $2 to $2.50 f.o.b. for Nos. 1 and 2; Pears, medium, 50 to 60 cents a basket; grapes, medium to good. Only a few in yet along the lake.—H. S. Peart.

KENT COUNTY, ONT

Chatham—The fruit crop is very light. In some orchards that have been well sprayed, occasionally there is a good showing of winters, but no falls. Buyers are offering $1 to $1.85 on the tree, but I have not heard of many sales. Possibly this is because there are very few in the market. Heavy rains recently have helped considerably.—W. D. A. Ross.

GREY COUNTY, ONT.

Meaford—There is a very good crop in this locality. The apple crop is not quite so heavy as last year, but the plum crop is better. The month of August was dry, consequently the apples made but little growth, but recent rains have improved them greatly. Most of the apples have been bought up at from $1 to $1.25 a barrel. Those who have not yet sold their apples are holding for higher prices or intend selling through the Georgian Bay Fruit Growers' Association.—H. E. Gifford.

ESSEX COUNTY, ONT.

There are practically no apples to sell in this county. It is doubtful if there will be sufficient to supply the local market. I never saw such a complete failure in fruit as there is here this year.—J. L. Hilborn.

Flowers for Hospital

Recently the directors of the Napanee Horticultural Society sent a request to the members to contribute such cut flowers as they could spare to send to the Kingston General Hospital. The response was so hearty, that the committee in charge filled 20 good-sized boxes and forwarded them by express. That the gift was appreciated is evident from the following letter received from the Superintendent of Nurses:

"Mr. W. S. Herrington, President, Horticultural Society, Napanee, Ont.,—Kindly convey to the members of the Napanee Horticultural Society the grateful thanks of the Board of Governors for the supply of cut flowers you were good enough to send to us through the Woman's Aid Society. The flowers were beautiful, and the quantity sufficient to allow some for every room. I assure you we appreciate your thoughtfulness very much in helping in this way to make the rooms bright and cheerful for our patients.—E. A. Hunter, Sec. Kingston General Hospital."

GLADIOLI STOCK FOR SALE

A large and fine stock of beautiful Hybrid Mixed Gladioli must be sold by reason of my growing age. I will give a good lay on the whole stock of some 40 thousand choice bulbs and bulblets, all originated from Mr. Groff's New Hybrids. With regard to terms, conditions of stock and all further particulars, address at once

B. GOTT - STRATHROY, ONT.

R. & W. DAVIDSON

9 Virginia Street, GLASGOW

Branches in

LONDON, LIVERPOOL, MANCHESTER
BRISTOL, NEWCASTLE and LEITH

Invite Consignments Apples

For Best Family Trade. Boxes Preferred

For Particulars Refer to Editor of this Journal.

Mention The Canadian Horticulturist when writing

Apples for Export

REPRESENTING

THOS. RUSSELL, Glasgow

J. & H. GOODWIN
Manchester, Liverpool and Hull

¶ Will be pleased to keep you advised regarding the condition of the European markets.
¶ If you have any apples for export call or write

Fred. Barker, 25 Church St., Toronto, Can.

Mention THE CANADIAN HORTICULTURIST

H. H. & S. BUDGETT & CO., LIMITED

BRISTOL, ENGLAND

Importers of Canadian Apples. Liberal allowances made to reputable shippers on bills of lading at Montreal. Write at once for further particulars regarding our method of disposing, and payment for first-class Canadian fruit.

To Fruit Growers

¶ We require from now until the end of the season a regular sending of colored apples, also Greenings and Russets. Highest prices realized for best goods. References furnished on application. Please write for all information required to

W. PALEY & SON

Established 1849

Kirkgate Market, Leeds, England

Mention The Horticulturist when writing

WANTED—APPLES

FRUITS OF ALL KINDS

F.O.B. OR CONSIGNMENTS

WRITE OR WIRE

Geo. Vipond & Co.

606-610 St. Paul St., Montreal

Branch—Winnipeg, Man.

Mention The Horticulturist when writing

NOTES FROM THE PROVINCES

By our Regular Correspondents and Others

Montreal

E. H. Wartman, Dominion Fruit Inspector

Montreal Island is noted for melons, onions, and Fameuse apples. Melons are a good crop. The finest quality is put up for New York and selling at f.o.b. here at $10 to $12 a dozen. Those of fair quality sell at $5 a dozen for local trade. Once in a while you will see a beauty in a store window with a card attached, stating "Weight 30 lbs., price $2.50." Seed onions are the heaviest crop that I ever saw in any country.

Last month I visited the orchard of Mr. C. P. Newman, of Lachine. It is 50 acres in extent, planted largely with apples of the Fameuse type, which are clean of fungi, due to the practice of spraying annually. We have had no dry weather since vegetation started in spring. With so much moisture in the air and ground, and with occasional extreme heat, one naturally would look for apples spotted with fungi. There are many of this kind where the spray pump was idle. One barrel of clean Fameuse is worth at least two barrels of spotted ones.

Duchess, Tetovsky, Yellow Transparent, and Astrachan, are picked and marketed in 11-quart baskets, which retailed in Montreal at 50 to 60 cents. The apple crop of the island is an average one. Those who did not spray or thin the fruit, will lose. I saw one orchard of 100 Wealthy trees, all drooping like an umbrella, but with fruit that will not amount to much. This season two-thirds of the poorest specimens should have been removed.

NOTE—The foregoing arrived too late for insertion in the September issue. The regular October letter follows. —*Editor.*

OCTOBER REPORT

As an Ontario man, I see many sights in the neighborhood of Montreal that make one feel sorry that such things prevail. Recently I strolled about two miles west of Westmount. I met boys, girls, men and women on their way to the city carrying apples in bags holding about a peck to one bushel each. A short distance behind them, I met two men with double-barrelled shotguns going in the same direction.

The apples going forward so far this season are not satisfactory. Generally they are immature, small and off color. When I was a buyer and shipper in Prince Edward County, Ont., I thought that Sept. 20 was early enough for the picking of Colverts, Jennettings, Alexander and 20 Ounce Pippin. This year, apples got a late start and as they were picked as early as Sept. 25, is it reasonable to expect that these varieties would have color sufficiently good for No. 1 grade? Picked at that stage, they are uninviting; in fact, so green that they are unwholesome for food. Were they left until better colored, they would bring more money. I have known Colverts to get so red that when opened in Liverpool they sold for nearly as much as Kings.

The apples going forward are really too green for evaporating purposes. Greenings are coming forward. Oct. 1 is early enough for this class. A case illustrates my point. A friend of mine who had a well-kept orchard, largely of R.I. Greenings, became uneasy for fear the wind would blow them off, and commenced to pick about Sept. 25. It was the lesson of his life. He graded them and packed them in barrels, leaving the heads out. Two weeks later he repacked them, and it took three barrels to make one. The immature fruit had spotted so badly as to necessitate the throwing of two barrels out of every three; they were nearly worthless. This year I have noticed even No. 3 quality of Colverts, Jennettings and Greenings going to the best market that we may ever hope to have. They are not fit for cider. I say, Shame! shame!

British Columbia

C. P. Metcalfe, Hammond.

The plum and prune shipments are over for this season. The crop was considerably below the average, and the prices were good. Growers have had no difficulty in disposing of the crop as the demand exceeds the supply. The demand in the markets of the Northwest provinces has increased so rapidly for plums and prunes, especially Italian prunes, that they have been obliged to import Washington prunes at increased cost, as British Columbia was unable to keep pace with the markets.

Winter apple trees are fairly well loaded and should yield a good crop of clean fruit. There have been no severe winds as yet and windfalls are few.

Exhibitions are in full swing again. Every agricultural society that can possibly secure the required 50 members is entitled to a government appropriation, if it desires to have an exhibition. I think it a mistake the multiplication of so many small shows all drawing government money, which could be spent to better advantage in the development of the larger exhibitions, and in the encouragement of district or municipal exhibits at these exhibitions. Large growers will not go to the expense of preparing exhibits for these small shows, where the prizes offered are insufficient to cover the trouble and expense, and where the commercial aspect of fruit growing is seldom introduced.

There has been a record crop of blueberries in New Brunswick. The berries have been of large size and the market good.

Apples promise a fair crop in Nova Scotia, and the quality is good. Gravensteins and Spys show some spot. Other varieties appear clean or nearly so. Prospects indicate that there will be exported about 350,000 barrels of fairly good fruit.

TARGET BRAND

SCALE DESTROYER

Kills San Jose Scale

TARGET BRAND SCALE DESTROYER is a positive and reliable agent for the destruction of San Jose Scale. If your orchards are infested with this troublesome pest you can clean them out with this preparation, and make your trees healthful and prolific fruit-bearers. It never fails, but can be relied upon to do the work when used according to instructions. It is

Positively Guaranteed

harmless to trees or fruit, and effective in operation. It is a soluble oil, which, when diluted—one gallon of oil to 20 gallons of water—can be applied with any good spray pump without clogging the nozzles or giving any trouble whatever. This method is much more rapid and effective than a Lime-Sulphur wash, requires no skilled labor, and there is no risk of injuring the tree.

Target Brand Scale Destroyer

is more effective, less disagreeable to handle, and costs no more than Lime-Sulphur Wash. Try it if you want satisfactory results. Endorsed by leading fruit-growers everywhere. Write for our new illustrated Spraying Catalog and price-list, and Bulletin, "Dipping vs. Fumigation." SENT FREE.

AMERICAN HORTICULTURAL DISTRIBUTING CO., Box 705, Martinsburg, W. Va.

W. H. BRAND, Canadian Representative, JORDAN STATION, ONT.

The Climate of the Okanagan Valley

H. Gordon, Vernon, British Columbia

THERE is one meteorological station in the Okanagan Valley, situated upon the Coldstream Estate; it is only of the second class, but I have been able to obtain the following figures by analyzing the records kept during the past five years, and courteously placed at my disposal by Mr. E. F. Lloyd:

AIR TEMPERATURE

	Mean Max.	Mean Min.	Mean Aver.	Mean
January...	27.0	15.9	21.5	for six years 1902 to 1907
February...	32.2	18.9	25.6	
March.....	43.0	25.5	34.3	
April. .	58.5	35.1	46.8	
May.....	65.7	42.3	54.0	for five years 1902 to 1906
June.....	73.1	47.6	60.4	
July.....	83.2	52.8	68.0	
August.....	81.2	51.0	66.1	
September..	67.4	43.5	55.5	
October....	55.3	36.4	45.9	
November..	40.8	28.4	34.6	
December..	32.4	22.5	27.5	

The highest recorded temperature, 101°, July 21, 1905.

The lowest recorded temperature, 24° below zero, Jan. 14, 1907.

The highest minimum temperature recorded, 63° Aug. 7, 1905, July 7 and Aug. 13, 1906.

The lowest maximum temperature recorded, 20° below zero Jan 14, 1907.

The maximum temperature reached 90° or over on 28 days in June, July and August, 1906; on 20 days in July and August, 1905; on 23 days in June, July and August, 1904; on 5 days in June and July, 1903, and on 4 days in June and July, 1902, only.

The maximum temperature did not exceed zero on 8 occasions only, all in Jan. and Feb., 1907.

The minimum temperature stood at or below zero on 22 days in Jan. and Feb., 1907; 9 days in Jan., Feb. and Dec., 1905; 6 days in Jan., Feb. and Dec., 1904, and 5 days in Jan. and Feb., 1902, only.

The minimum temperature reached 60° on 15 days in July and Aug., 1906; 4 days in July and Aug., 1905, and 3 days in July and Aug., 1904, only.

DATES OF FIRST AND LAST FROSTS

	Last Frost	First Frost
1902.....	26 April	28 September
1903.....	8 May	3 October
1904.....	11 May	19 September
1905.....	18 May	9 October
1906.....	5 May	19 October

The above analysis shows clearly that the climate is far from being free from extremes of temperature. The figures tend to prove that the district experiences a summer day temperature which is characteristically continental, tempered by cool nights due to the elevation above sea level; and that its winter temperature is, on the whole, moderate, when judged by the standard prevailing in the inland districts of the northern portion of this continent. The records of the precipitation of snow and rain are complete for four years, as follows:

	SNOW Inches	RAIN Inches
1903.....	46	13.28
1904.....	55	10.64
1905.....	6	11.91
1906.....	46	10.27

It would be a great advantage to the fruit grower if the present meteorological station were raised to the first-class and observations taken of the relative humidity, sunshine, cloud, wind, etc. A similar station should also be established in the southern Okanagan, whose climate is believed to present differences in a few particulars from that of the northern Okanagan Observations taken scientifically over a series of years are required to reveal these differences.

IRRIGATION

The comparatively small rainfall confirms the necessity for irrigation. Irrigation works are either already installed or in course of construction in every district of importance. The system of distribution of water through Copoletti weirs, which is to be introduced at Vernon, promises to be more satisfactory to the user than the present haphazard method.

"The Fruits of Ontario"

A publication that has been promised to the fruit growers of Ontario for some time, has just been issued by the Ontario Department of Agriculture. It is entitled "The Fruits of Ontario," and is exceedingly well prepared. The selection of varieties with descriptions is worth much to every fruit grower of our country. The selections are based on the results of varieties tested at various experiment stations in the province. The descriptions were carefully prepared by Mr. Linus Woolverton, who had most of the work of preparing the volume in charge, and deserves much credit for his labor and enterprise.

The information given on cultural methods is worth much to fruit growers in general. A large number of half-tones of fruit varieties enliven the pages and make the accompanying description of greater value than it would be otherwise. The entire work is well worth the trouble and anxiety that has been spent in its preparation. It is a credit to the Ontario Department of Agriculture and to its authors.

Dominion Line

ROYAL MAIL STEAMSHIPS

"Alberta," new steamer, 14,000 tons, building
"Albany," new steamer, 14,000 tons, building

MONTREAL TO LIVERPOOL

S.S. "KENSINGTON" . . . Oct. 5th
S.S. "SOUTHWARK" . . . . " 12th
S.S. "CANADA" . . . . . " 19th
S.S. "OTTAWA" . . . . . " 26th
S.S. "DOMINION" . . . . . Nov. 2nd

Above steamers all carry passengers.

MONTREAL TO BRISTOL
(Avonmouth Dock)

S.S. "TURCOMAN" . . . . Oct. 12th
S.S. "ENGLISHMAN" . . . " 26th
S.S. "MANXMAN" . . . . Nov. 9th

Favorite Steamers for all kinds of perishable cargo having fan ventilation, cold storage, and cool air chamber.

GEORGE W. TORRANCE,
Freight Agent . 28 Wellington St. E., TORONTO

M. A. OVEREND
J. W. WILKINSON } . . . . . Travelling Freight Agents

DOMINION LINE—PORTLAND, Maine.

Mention The Canadian Horticulturist when writing.

Henry's Nurseries

PACIFIC COAST GROWN
Garden, Field and Flower Seeds

BULBS FOR FALL PLANTING

Thousands of Fruit and Ornamental Trees, English Hollies, Greenhouse Plants. Grown north of the 49th parallel.

No scale. No damage by fumigation.

¶Reliable varieties at reasonable prices. Fertilizers, Bee Supplies, Spray Pumps, Spraying Material, Cut Flowers, etc. Oldest established nursery on the mainland of British Columbia. Catalogue free.

M. J. Henry's Nurseries
Greenhouses and Seedhouses, Vancouver, B.C.

Mention The Canadian Horticulturist when writing

POULTRY DEPT.

Conducted by
S. Short, Ottawa

What books shall I read to inform myself on the subject of poultry-keeping for a livelihood?—Subscriber, Toronto.

It depends somewhat on the locality in which "Subscriber" intends to establish his plant as to which is the best publication or poultry literature for him to read. Presumably he intends to operate in Toronto or in Ontario. If so, I would recommend publications of that province. Experience and information gained under the same climatic conditions as the locality in which "Subscriber" intends to operate, will be most valuable to him. Climate in Ontario, especially in mid-winter, plays an important part in deciding the success, or otherwise, of the beginner in poultry keeping. If, therefore, "Subscriber" intends to establish his poultry plant in this province, provincial publications are undoubtedly the best for him to study. I would recommend the annual report of the Central Experimental Farm, Ottawa; also the bulletins and pamphlets that are issued from time to time by the same institution; bulletin No. 157 on "Farm Poultry" sent out by the Ontario Agricultural College, Guelph, and lastly, *The Poultry Review*, published in Toronto. The two former publications may be had on application; simply address a post card to either or both institutions. The yearly subscription to *The Poultry Review* is 50 cents.

The Experimental farm report contains general information, covering the whole field of poultry-keeping, gained by actual experience and observation by Mr. A. G. Gilbert, the manager of the poultry department. The bulletins are from the pen of the same writer and the matter therein is carefully prepared and reliable. The bulletin on "Farm Poultry," prepared by Mr. W. R. Graham, B.S.A., poultry manager and lecturer at the Ontario Agricultural College, contains information that should be valuable to beginners. It treats of poultry-keeping from A to Z, hatching, feeding and rearing of chicks, and housing, feeding and treatment of the laying stock. The table in the bulletin on the manner of feeding and cost of egg production from April to August must not, however, be taken as a basis on which to build future hopes of profit from poultry, for it must be borne in mind that the fowl that produced the eggs that cost an average of six cents a dozen during the summer had to be kept during the other seven months. Whether they paid for the food consumed during that time, the bulletin does not say.

The Poultry Review is ably conducted. Its articles are written by the best known authorities on the respective subjects treated. Full reports of poultry institute meetings and all shows and exhibitions are published. This is important, for there are two phases of poultry-keeping; viz., farm poultry and fancy poultry. The combination of both, in my opinion, offers the best chance of success. There are several sources of revenue—winter eggs, the sale of dressed birds, the spring sale of eggs for hatching, the perpetual sale of stock and exhibition fowl. More could be written on farm poultry and fancy poultry. This subject concluded in next issue.

Before closing I would like to suggest to "Subscriber" that he gain some experience in poultry keeping before embarking in it as a livelihood. There are several opportunities for doing so. If practicable, take a course at the Ontario Agricultural College, then hire with one of the large poultry producers, and then start quietly and enlarge the establishment as circumstances and profits warrant.

The Kincardine Horticultural Society deserves much credit for the excellent flower show that was held recently in that town. The show far exceeded expectations. A large number of exhibits of fair quality, considering the season, attracted much attention.

A successful flower show was held by the Toronto Horticultural Society on Sept. 21. There were 487 entries, mostly of asters, with a few dahlias and gladioli, contributed by pupils of about forty schools in the city. The display was most creditable and showed that the children are taking much interest in the work. The awards were given in bulbs for fall planting. These are to be grown for competition at a show next spring.

Baby Rambler

Ever-blooming Crimson Dwarf. Think of roses every day from June until frost out of doors.

Plant Only The Best

Fruit and Ornamental Trees, Shrubs Roses, Berry Plants, Grapevines, Etc.

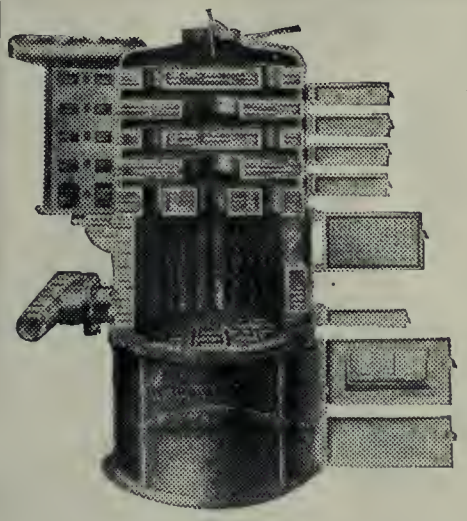
Look at Prices in Our Catalogue. We Ship Direct to YOU. No Agents

¶ Our prices and stock are O.K. Write us. Now is the best time to ORDER for FALL PLANTING, while we are in full supply. ¶ Quality Governs at the Central Nurseries. ¶ We would appreciate your order. Try us.

27th Year

A. G. HULL & SON, St. Catharines, Ont.

Mention The Canadian Horticulturist when writing.



Don't Wait Till the Frost

Make arrangements to have your heating plant in your conservatory in good order before the weather turns cold.

"SOVEREIGN" Hot Water Boiler

has given universal satisfaction as an economical and reliable heater. Works equally well with city water service or tank supply.

OUR BOOKLET, "EFFICIENT HEATING," FREE TO ANY ADDRESS

Taylor-Forbes Company, Limited, Guelph, Ont.

1088 King Street West, Toronto 122 Craig Street West, Montreal

Mention The Canadian Horticulturist when writing

¶ Write for our Illustrated Catalogue and find out what it contains. We offer a complete list of the best varieties of fruit and ornamental stock. Stock ready for shipment October 15th.

THE PELHAM NURSERY CO.

TORONTO, ONTARIO

Mention The Canadian Horticulturist when writing

A Dominion Conference Next Winter

THE fruit growers of Canada are anxious to hold a Dominion Fruit Conference in 1908. This is evidenced by various expressions of opinion that have been received by THE CANADIAN HORTICULTURIST since the July issue, which contained similar letters from secretaries of provincial fruit growers' associations. The fruit growers are justified in feeling as they do regarding the matter. The Hon. Mr. Fisher assured the delegates to the conference last year that another would be called within a reasonable time. Our fruit problems and questions of national importance are multiplying so rapidly, in pace with the general development of the industry, that it is quite reasonable to consider next winter the proper time for holding the third Dominion Fruit Conference. The following letters state the opinions of some of the delegates to the last conference:

Mr. R. W. Starr, Wolfville, N.S.: "I am glad to find a move in favor of a fruit convention next winter. I think the last one was of great benefit to the industry at large. If possible, the meetings should be continued biennially, as there is, and always will be, subjects of great importance to discuss, and which can only be decided after careful consideration by such a gathering as we had in Ottawa in March, 1906."

Prof. G. Reynaud, La Trappe, Que.: "A second conference would be very useful, as the program of the last meeting has not been completely fulfilled, especially as regards the fruit trees trade. This question, a very important one, should be taken up in the program of the next fruit growers' conference. If all parties interested in fruit culture would suggest just a few of the questions which have not yet been elucidated there would be room for still more than one conference."

Mr. A. W. Peart, Burlington, Ont., writes: "I am somewhat disposed to think that a meeting once every three years would be about the correct thing. Too frequent meetings are less impressive and are wanting in substance. I consider the following subjects of sufficient importance to discuss: 1. Fruit statistics for the Dominion and several provinces; 2. Transportation and cold storage; 3. Markets and marketing. These are essentially of general interest and importance, and doubtless there are others as well."

Rev. Father Burke, Alberton, P.E.I.: "I am very much in favor of another horticultural conference at Ottawa, next March, and have no doubt but that the Minister will convene one in fulfilment of the promise made to the last one held there in 1906. As you say, I was the framer of the resolution asking for the formation of a Canadian Pomological Association, but fearing that the time was not quite ripe for so pretentious an organization, and knowing well that it requires funds to support any such institution, I took the liberty of interrogating our amiable chairman, the Hon. Mr. Fisher, as to his view of the situation and what might be done to assemble the headsmen of horticulture nationally at least every two years. He was quite frank in his reply, and whilst you are right in saying that he gave no explicit promise, as clearly as words can express it, he gave us all to understand that he sympathized with the movement to convene this body biennially, and had no doubts but that he could easily induce the Government so to do. For my own part I have little doubt then but that the Minister has already this matter in mind. With you, however, I am fully convinced of the absolute necessity on the part of the associations of Canada of preparing the matter of the agenda paper as early as possible. There was much done and much left undone the last time. There are new conditions to be considered since, too. I understand that the reason given why much more legislation did not follow our efforts was that the findings on at least one or two important questions were perhaps too hurriedly made. So far as I am concerned I am ready to-day to stand by the decisions taken then, but I am ready, too, to hear the arguments contra of those who are said to have changed their minds. By all means, let us have the second conference this winter; we will be in a position to do much better work, and the work is wanted and will well repay the country any expenditure made on account of it. It would be well, then, to ask the Minister to name the day."

Origin of "America"

During the past year, a lengthy controversy has been going on in the horticultural press of Canada and United States as to the original source of the gladiolus "America," a variety that was used to decorate the yacht *Mayflower* for the Russia-Japan peace confernece.

Recently Mr. H. H. Groff, of Simcoe, Ont., placed a declaration, made by competent authorities in the United States, in the hands of the leading trade press of New York and Canada, giving him the credit without the slightest doubt. Canada is thus sustained in the claim of having been the source of this feature of declaration of that historic gathering.

The 5th annual fruit fair of the Nelson, B.C., Agricultural and Industrial Association was held at Nelson on September 18-20.

The

Herbert Raspberry

THE HARDIEST, MOST PRODUCTIVE AND BEST ALL-ROUND RASPBERRY IN CULTIVATION

Following is the average yield for three years of the leading kinds as fruited at the Central Experimental Farm, Ottawa:

Herbert	36 lbs.	7¾ ozs.
Columbian	11 "	9¼ "
Marlboro	7 "	12½ "
London	7 "	12 "
Shaffer	6 "	10½ "
King	5 "	15 "
Golden Queen	4 "	15½ "
Cuthbert	Failure—too tender.	

A. E. Sherrington of Walkerton, Ont.

Ontario Government Experimenter reports in 1906, Report of Ontario Fruit Experiment Stations: Herbert—Plant, strong, vigorous and very hardy; fruit, very large, larger than Cuthbert; yield, 592 ozs.; ripe July 13th. This variety is by far the heaviest cropper of all raspberries.

Choice plants grown direct from the originators' stock for sale at reasonable prices by

THE OTTAWA NURSERIES

"The Home of the Herbert."

253 BELL STREET, OTTAWA, ONT.

Descriptive Circular and Price List Free on Application.

Mention The Canadian Horticulturist when writing

CANADA'S OLDEST NURSERIES

Blackberries
Currants
Grapes
Raspberries

The small fruits are what are earning the most money for the fruit grower and we are making them our specialties. We have the largest blocks of this class of stock to be found in the Dominion, as well as a complete assortment of all classes of **FRUIT AND ORNAMENTAL TREES AND SHRUBS.**

WRITE US BEFORE PLACING AN ORDER

Agents wanted to introduce the great **HERBERT RASPBERRY.** Large stock of first-class 2-year-old plants.

THE THOMAS W. BOWMAN & SON CO. LIMITED

RIDGEVILLE, ONT.

Mention The Canadian Horticulturist when writing

CANADA'S GREATEST NURSERIES

GROWERS OF HIGH-CLASS NURSERY STOCK

Our Specialties for Season 1907-8 comprise the largest list of Improved Varieties of Fruits and Rare and Choice Ornamentals ever offered for Canadian Culture.

Seedlings for Hedges, Windbreaks and Shelterbelts

Black Walnut—Of the greatest commercial value as a nut-bearing tree and for its timber. **Black Locust**—Rapid growing and very hardy, suitable for Manitoba, Saskatchewan and Alberta. The timber is largely used for railroad ties and fence posts. **Catalpa**—The most rapid growing tree for windbreak purposes, making an enormous growth in a very few years. **Russian Olive**—A beautiful growing shrub suitable for ornamental purposes, clean dark limbs with silvery twigs and leaves and yellow flowers, very hardy and successfully grown everywhere.

Special Quotations on 100 and 1000 lots at Lowest Prices.

King Raspberry

Earliest and best red, a firm shipper, ripening ahead of Marlboro, of highest color and quality.

Packing and Shipping Time at Canada's Greatest Nurseries

Maynard Plum

Luther Burbank's greatest plum production controlled alone by us in Canada through special arrangement with the originator.

Ornamental Department

New Japan Lilacs—In over 100 distinct varieties, double and single in all shades of color. **Fancy Evergreens**—Rare specimens in well-grown stock several times transplanted. **Herbaceous Perennials**—Including sweet-scented Pæonies, Phlox, Hollyhocks, Achillea, Boltonia, etc. **Ornamental Shade Trees, Flowering Shrubs, Roses** and **Bulbs.** **Descriptive Catalogue** mailed free on application.

AGENTS WANTED in all districts where we are not represented.

STONE & WELLINGTON

(FONTHILL NURSERIES)

TORONTO — (OVER 800 ACRES) — ONTARIO

Mention The Canadian Horticulturist when writing

At The Canadian National Exhibition

EXCEPT in the plant section, the horticultural features of the Canadian National Exhibition were not as good as in past years. This was due, in the case of the fruit, vegetables, and cut flowers, largely to the backwardness of the season in spring and to the dry weather during the summer. There were some excellent collections of decorative plants. They were superior to any that have yet been seen in Toronto.

THE FRUITS

In many respects the fruit exhibit was disappointing. Most of the specimens shown were not as mature as usual at that time of year. The tables used for displaying the fruit were not satisfactory. Those against the walls were altogether too wide both for display and for judging. It was almost impossible to examine the plates at the back of the table, and the visitors got a very poor view of them. The tables in the centre also were wide, when the manner of placing the exhibits was considered. If the tables had been divided in the centre and the classes arranged on either side so that the judges and the spectators would not have to look more than half way, they would have been satisfactory.

The tables for the box fruit were too high, and as the boxes were placed upon them in a level position, the onlooker could see little or nothing more than box. The box exhibit was valueless from an educational viewpoint. The tables for these packages should be six inches lower in front and gradually slope upwards towards the back. Had this been done, the appearance would have been more attractive. The collections of fruit from the St. Catharines Cold Storage Company, The Grantham Township Fruit Growers' Association, The Niagara Township Fruit Growers' Association, and The St. Catharines Horticultural Society, were very good, but should have been given a better position. They would have appeared better on a table in the centre, where they could have been viewed from every side. In the boxed fruit entries, some boxes that were not of standard size received prizes. It is said that the exhibitor made a mistake and had his boxes made 10 x 11 x 20 inches, outside measurement instead of inside. Even so, the packages were the wrong size and not what was called for and, therefore, should have been disqualified. But for these few points, the exhibit of boxed apples and pears was creditable.

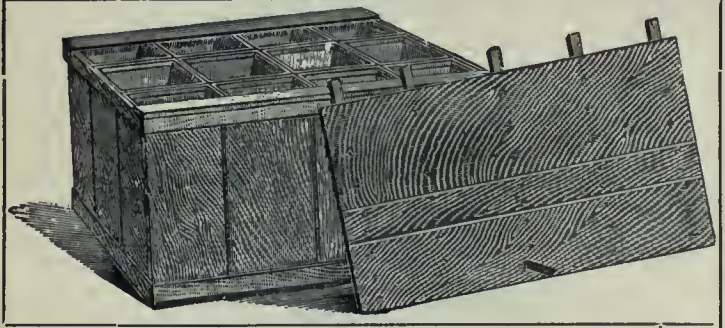
The grapes were better than was expected for the late season. The awards were placed well considering the fact that the judge had to work with green grapes—a difficult task. In the peach section there were some excellent plates. It was the general opinion, however, that a few mistakes had been made in placing the awards. A few of them are as follows: In a class calling for Chair's Choice, Elberta was entered and was given 2nd prize. In the section for Foster, ripe St. John received 1st and 3rd prizes. In one plate of 2nd prize Early Michigans were two early Rivers. In the pear section some fine specimens were to be seen, but in one or two cases the varieties were wrongly named. Tyson was entered for Gifford, and given 2nd prize. Louise Bonné was entered in the section for "any other fall" but was ruled out by the judge. Tyson was also entered for Lawson and was given 1st prize. The plum exhibit was better than was expected for the saeson and date.

Display of Fruit in Boxes at Canadian National Exhibition

Showing how it appeared to the passersby. The arrangement was most unsuitable for best display

BASKETS

We are Headquarters for all kinds of Splint Baskets



Veneer supplied for the protection of trees from mice during winter

FRUIT PACKAGES A SPECIALTY

SEND FOR OUR PRICES

The Oakville Basket Co. - Oakville, Ont.

Mention The Canadian Horticulturist when writing

Feed Your Land

WITH GOOD MANURE AND GET

GOOD RETURNS

MARCHMENT'S

SURE GROWTH COMPOST

IS THE BEST

Supplied to the Largest Nurserymen and Fruit Growers in Ontario

S. W. MARCHMENT

133 VICTORIA ST., TORONTO

Telephones Main 2841 Residence Park 951

Mention The Canadian Horticulturist when writing

The entries in the apple classes were not up to much. The date was too early for securing well-matured specimens and this year the immaturity of fruit was particularly marked. As the specimens were not normal in condition or appearance, the judge had some difficulty in placing the awards and a few errors occurred. Alexander was entered for Wolf River and, as should be expected, was disqualified by the judge. In the section for Swayzie Pomme Grise, Montreal Bonne Grise were entered and given 1st and 2nd prizes; 3rd prize was given to a true Swayzie. Road Island Greening got 1st prize for North-West Greening. The 1st prize Roxbury Russets were not truly named and the 1st prize Colvert were not typical by any means. 2nd prize Ribston were wormy.

THE GOVERNMENT EXHIBIT

An educational exhibit comprising fruits from the various experiment stations in Ontario was a creditable one. It was in the charge of Messrs. P. W. Hodgetts and T. B. Revett, of the Department of Agriculture. The recommended commercial and hardy varieties of the various fruits were exhibited, and the best varieties for home use. Some time ago the department published a bulletin on "Varieties Recommended for Planting in Ontario." The object of the exhibit was to bring together for the benefit of visiting fruit growers, specimens of the varieties so recommended. Two new varieties of apples, Lowland Raspberry and the Lubsk Queen, from the C. E. F., Ottawa, attracted much attention. The O. A. C., Guelph, contributed 50 varieties of tomatoes.

THE VEGETABLES

Except in the case of onions and cabbage, the vegetable exhibits were not as heavy nor as good as in past years. This, also, was due to the unfavorable season. The collections were very good. The 1st prize was won by Mr. J. B. Guthry, Dixie, Ont., and the 2nd by Brown Bros., Humber Bay. There was an excellent show of cabbage, the best for years. Cauliflowers were not plentiful and only fair in quality. Squash was poor; citron, small; carrots, only fair; beets, poor; parsnips, fair; turnips, rough; kale, fair; leeks, good but not enough shown; celery, fair to good; winter radishes, good; peppers, medium; sweet corn, poor; tomatoes, smooth but small; potatoes, good; onions, exceptionally good and clean.

The Niagara District Exhibition

ONE of the best exhibitions of its kind that ever has been held in Canada, was held in St. Catharines, Ont., on Sept. 18 and 19. It was the Niagara District Horticultural Exhibition. In number of entries, in quality of exhibits and in the matter of arrangements, it surpassed the horticultural show at the Canadian National Exhibition. Of course the exhibition in St. Catharines had the advantage of being held two weeks later than the one in Toronto, and as a result, better fruit was to be had. The arrangements and display of the exhibits showed, however, that those in charge had a keen conception of the artistic, which was sadly lacking at the Canadian National. The difference is shown in the illustrations that appear in this issue. The St. Catharines Horticultural Society has reason to be proud of the character of the exhibition. The citizens of the city of St. Catharines and the fruit growers throughout the Niagara District should have given it greater support in the matter of attendance.

The flower and plant show was exceptionally good. The cut bloom was excellent. There was a fine collection of dahlias. Possibly they would have shown to better advantage had the same number of bloom been placed in a larger number of vases. The gladioli were particularly good. The school children's exhibit of asters was good, but perhaps not so fine as last year, owing to the dry season and to the depredations of variegated cut-worms; they were decidedly creditable, however, and showed the result of much care and interest on the part of the children. The regular classes for cut bloom grown by amateurs were well filled with specimens of excellent quality. The bloom could scarcely be beaten anywhere.

One side of the immense building in which the exhibition was held was one mass of foliage. The showing of decorative plants was an education in itself. The space occupied by these plants was 165 by 8 feet. The specimens in the various banks from the greenhouses and from

FOR SALE AND WANT ADVERTISEMENTS

Advertisements under this heading inserted at rate of one cent a word for each insertion, each figure, sign or single letter to count as one word, minimun cost, 25 cents, strictly cash in advance.

LANDSCAPE GARDENING.—Mr. C. Ernest Woolverton, Landscape Designer, care of W. H. Manning, Boston, Mass.

FRENCHMAN, 25 years of age, ten years' experience, good references, wants situation on fruit experiment station or fruit farm. H. Brayard, Box 24, Mimico.

WANTED—Persons to grow mushrooms for us at home; waste space in cellar, garden or farm can be made to yield $15 to $25 per week; send stamp for illustrated booklet and full particulars. Montreal Supply Co., Montreal.

Mention The Canadian Horticulturist when writing.

PACKERS' "SAFETY"

Fruit Wrapper

PAPER

Recommended by Government Inspectors
Used with perfect results by largest growers

TAKE NO CHANCES WITH
UNTRIED PAPERS

Large Stock, Following Sizes, Always on Hand:

8x 9....	10c per ream	(480 sheets)
10x10....	14c "	"
20x30....	81c "	"
24x36....	$1.15 "	"

Buntin, Gillies & Co.
LIMITED
HAMILTON -- -- CANADA
Mention THE CANADIAN HORTICULTURIST

professional florists, were exceptionally well grown. The display that attracted the most attention was one shown by Mr. Roderick Cameron of Queen Victoria Park, Niagara Falls, Ont. It demonstrated Mr. Cameron's skill and enthusiasm in the art of growing rare things.

The floral designs were much admired and, with a couple of exceptions, the work was done well and with good taste. The table bouquets were good. The decorated dining tables looked exceedingly well. They were decorated by the ladies and not by professional florists and, consequently, could not be expected to equal those usually seen at the Ontario Horticultural Exhibition, held in November.

THE FRUIT EXHIBITION

In the number of entries and in quality, the fruit was excellent. The exhibit of grapes was superior to anything before shown in this country; there were 166 entries. The other entries were as follows: apples, 146; pears, 149; peaches, 100; plums, 102; quinces, 13; specials in fruit, 134; commercial packages, 61; and preserved fruit, 171. Considering the dry season that we had during the past summer, it was surprising to see fruit of such excellent quality. The peaches were high class. The apples were fair; from the limited number of entries it was evident that the Niagara District is not paying as much attention to apples as to more tender fruits. Deserving of particular mention were the large collections shown by Mr. Furminger and Mr. Bunting, the former winning first prize. Both were of exceptional merit and the first prize one was the finest that has ever come under our observation.

An excellent feature of the exhibition was the contest of packing fruit in boxes. The competitors were young ladies, daughters of prominent fruit growers in that locality. The contest was educational; it showed the spectators how the various fruits and sizes of fruits might be packed in boxes properly. The young ladies showed much skill and the judge jound it difficult to place the awards. Practically the only thing that the competitors lacked was speed, and time is money during the fruit season. Being conscientious young ladies, they appeared to have more concern for the way in which the wrapped specimens appeared in the package than they had for rapidity. In the vegetable packing contest, the competitors were at great disadvantage as the specimens given to them for work were a fierce lot

THE VEGETABLES

The display of vegetables exceeded that of last year three-fold. There were 260 entries. The samples shown were well grown and true to type. In some instances, however, the varieties were wrongly named. It is only fair to the exhibitors to say that the judgments appeared to have been made with little or no consideration for the merits of the various entries. In celery, turnips, pumpkins, and tomatoes, particularly those in bushel crates for canning purposes, and in some other classes, reliable observers believe that the awards were wrongly placed. Other than this the vegetable exhibit was exceedingly good and did much toward making the exhibition attractive.

The horticultural department of the Manitoba Agricultural College, Winnipeg, has had the lawns around and about the college levelled and planted. The nature of the work would indicate that the college grounds will present a sight to be proud of in the course of a few years. A greenhouse is being built for the use of horticultural students.

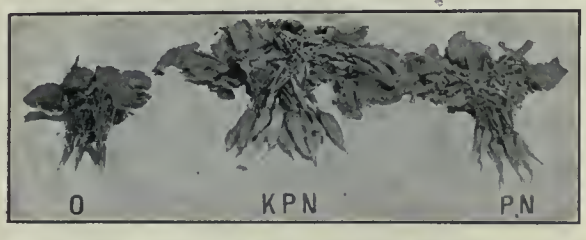
The Ottawa Fruit and Produce Co., Winnipeg, intends to enlarge their warehouses in that city. The increase in the fruit trade with the consequent increase in the firm's business, makes this move necessary. Mr. McNaughton, the manager, who has been the main factor in the development of the firm's business, deserves credit for his enterprise.

POTASH

for FIELD, GARDEN, ORCHARD

POTASH promotes maturity and counteracts the effect of an excess of nitrogen in the soil produced hy a too heavy application of farmyard manure or from other causes. POTASH is a direct plant food and is indispensable

Fertilizer Experiment on Radishes by Otto Herold, Waterloo, Ont., 1906



Treatment: Unfertilized — With Potash — Without Potash
Result Non-saleable — $200.00 — $20.00 per acre realized

POTASH in the highly concentrated forms of Muriate of Potash and Sulphate of Potash is obtainable of all leading Fertilizer Dealers. Pamphlets treating of the cultivation and fertilization of all farm crops will be sent free on application.

The Dominion Agricultural Offices
of the Potash Syndicate
1102, 1105 TEMPLE BUILDING, TORONTO
Mention The Canadian Horticulturist when writing

THE NEW WAY

THE OLD WAY

THE WAGGONER EXTENSION LADDER

is what you want for pruning and picking; also for general use about the place. It is reinforced with steel wire and is the lightest, strongest and handiest ladder made. Write for free illustrated circulars and price list.

The Waggoner Ladder Co.
Limited
LONDON, ONTARIO
Mention The Canadian Horticulturist when writing

Give Us Your Help

Ever since the subscription price of THE CANADIAN HORTICULTURIST was reduced from $1 to 50 cents a year, the circulation has increased steadily. Each month, we add several hundred more new subscriptions to our rapidly growing mailing list. A year ago, we had a paid circulation of about 4,000. Now, our subscription list contains the names of over 7,000 paid subscribers. By early next year we want to reach the 10,000 mark. We desire the help of every subscriber in this effort, and make the following special offers to secure our readers' help.

In clubs of three and over, we will accept yearly subscriptions for THE CANADIAN HORTICULTURIST at the rate of three for $1.00.

Many fruit, flower and vegetable growers are not aware that a live Canadian horticultural paper is being published in their interests. We would suggest that you show a copy of THE CANADIAN HORTICULTURIST to your friends, and probably you will be able to secure a nice number of new subscribers in your vicinity. Your friends will at least appreciate your thoughtfulness in bringing THE CANADIAN HORTICULTURIST to their attention.

Send us two new subscriptions to THE CANADIAN HORTICULTURIST, and we will advance your own subscription one year.

Send us your own renewal subscription, together with one new subscription, and we will send you a free copy of F. Schuyler Mathews' beautifully illustrated book, "The Beautiful Flower Garden." Or, as announced in the September number, we will send you free, for one new subscriber, a Maynard plum tree, postage prepaid.

As THE CANADIAN HORTICULTURIST is the only horticultural publication printed exclusively for Canadian fruit, flower and vegetable growers, we hope to receive our readers' support. You can help us to make THE CANADIAN HORTICULTURIST an even better paper than it now is, by inducing your friends to subscribe for it. By giving us your support, you not only secure a better paper, but you benefit the horticultural interests of the Dominion.

The St. Lawrence Route

This seems to be an opportune time to place before our readers the advantages of selecting the St. Lawrence route for shipments of perishable freight. The St. Lawrence being the Canadian route, it is but natural that those who have spent so much time and money in building up the port of Montreal should expect Canadians to patronize their own route. This expectation is not born of loyalty alone; the St. Lawrence route offers to shippers many advantages not possible of attainment by other routes. The ships of this route have been equipped with the most modern appliances for the safe carriage of fruit, dairy products and bacon; and in addition, vessels take the North Atlantic course, thus getting the advantage of the coolest trans-Atlantic voyage.

A glance at the history of shipping via the St. Lawrence should be of interest at this particular time, when so much is being said of fast Atlantic services, imperial unity and colonial preference. In taking a retrospect of the improvements, one cannot do better than look at the history of the Allan Steamship Company. The year 1852 saw this company with four steamers aggregating 3,400 tons. Since then the growth has been marvellous, and always in keeping with the requirements of the times. As soon as it became evident Canada would contribute largely to the food supply of Great Britain, the ships of the line were gradually fitted with cold storage refrigerators and other appliances for the safe stowage of perishable property, until to-day the Allan Line fleet consists of 32 steamers, aggregating 175,000 tons, with a cold storage and cool air capacity of say, 371,000 cubic feet, whilst the ordinary holds of the ships are equipped with

Steel Side-Walls for Modern Homes

Far surpasses wood, plaster or paper in beauty—matches perfectly any art scheme—any color scheme—makes the rooms REALLY sanitary—gives protection against fire—these are some of the reasons why YOUR house—why any modern building anywhere should have

PEDLAR ART STEEL SIDE WALLS

Cost little—last indefinitely. Let us send you the whole tale in print and pictures. The book is free. 203

The PEDLAR People (Est'd 1861).
Oshawa Montreal Ottawa Toronto London Winnipeg

IF YOU HAVE APPLES OR POULTRY TO CONSIGN

we can handle them for you to advantage. If apples are in car lots, write us and we can sell them for you f.o.b. your station

THE DAWSON COMMISSION CO. Limited
Cor. West Market and Colborne St.
TORONTO ——— ONTARIO

SPECIAL GLASS
FOR GREENHOUSES

Conservatories of The Dale Estate, Brampton, Ont.
Glass supplied by our Toronto Branch

GOOD QUALITY, FLAT, EVEN THICKNESS AND WELL CUT

PILKINGTON BROS.
Limited
Toronto, Montreal, Winnipeg, Vancouver

Mention The Canadian Horticulturist when writing

ABUNDANT CROPS OF HIGH QUALITY FOLLOW THE USE OF

Tobique Plaster
OR GYPSUM

ALL KINDS OF LAND REQUIRE THIS FERTILIZER

Fruit Growers—Flower Growers and Vegetable Growers

SHOULD USE TOBIQUE PLASTER

SPREAD IT ON YOUR LAWN OR GARDEN
THOUSANDS OF TESTIMONIALS FROM USERS

R. C. Mosher, Manager, Plaster Rock, N.B.

WESTERN AGENT
THE F. G. TERRY CO., 31-41 GEORGE ST.
TORONTO, ONTARIO

Mention The Canadian Horticulturist when writing

AN INFLAMED TENDON
NEEDS COOLING.

ABSORBINE

Will do it and restore the circulation, assist nature to repair strained, ruptured ligaments more successfully than Firing. No blister, no hair gone, and you can use the horse. $2.00 per bottle, delivered. Book 2-C Free.

ABSORBINE, JR., for mankind, $1.00 bottle. Cures Strained Torn Ligaments, Varicose Veins, Varicocele, Hydrocele, enlarged Glands and Ulcers. Allays pain quickly

W. F. YOUNG, P.D.F., 194 Monmouth St., Springfield, Mass
Canadian Agents: LYMAN SONS & CO., Montreal.

The Beautiful Flower Garden

By F. SCHUYLER MATHEWS

THIS artistic volume tells how to lay out and plan a small garden or lawn, so that the picturesqueness of the wider landscape gardening will result as far as possible. Four plans are given, two for laying out a country garden or yard, and two for a small city lot. This little volume sells for 40 cents, but we will send it FREE to any of our readers who will send us two new subscribers to **The Canadian Horticulturist.**

This splendid book should be in the home of every person at all interested in gardening.

GOES LIKE SIXTY
SELLS LIKE SIXTY
SELLS FOR $65
GILSON
GASOLENE
ENGINE
For Pumping, Cream Separators, Churns, Wash Machines, etc. FREE TRIAL
Ask for catalog—all sizes
GILSON MFG. CO. Ltd. Dept. 104 GUELPH, ONT.

The Foster Pottery Co.
LIMITED

MANUFACTURERS OF
Flower Pots
Azalea Pots
Fern and Bulb Pans
Straight Fern Pans
Seed Pans
Send for Price List and Catalogue

Main Street West, Hamilton, Ont.

Mention The Canadian Horticulturist when writing

THE HORTICULTURIST'S RULE BOOK

By L. H. Bailey

A compendium of useful information for fruit growers, truck gardeners, florists and others. The chapters on insecticides and fungicides, plant diseases, seed tables and planting tables, cements, glues, etc., will all be found exceedingly valuable to every intelligent horticulturist.

The regular price of the above book is 75 cents, but we will send it free to any of our readers who will send us three new subscriptions to THE CANADIAN HORTICULTURIST. Address

The Canadian Horticulturist, Toronto, Ont.

sirocco fans, thus giving exporters a choice of whatever stowage is required for the particular commodity being exported.

Not only has the company been keeping pace with the necessary ship improvements, but by interesting warehousemen and others, has succeeded in the establishment of modern cold storages at the steamers' docks in Liverpool and London, so that now those who invest largely in perishable commodities, feel secure when entrusting this property to the Allan Steamship Company. To those who have been fortunate enough to visit the new cold storage warehouse at Surrey Commercial Dock, London, Eng., it is unnecessary to expatiate, but for the benefit of those who have not had an opportunity to see this warehouse, be it said that competent judges have pronounced it one of the best equipped in Europe. This last year has also seen the completion of the Imperial Cold Stores at Canada Dock, Liverpool, where similar arrangements to those prevailing at London are in existence.

When the railway refrigerator service, by which traffic is safely and quickly transported to the seaboard, is taken in conjunction with steamship arrangements both on sea and land, one feels quite safe in recommending the St. Lawrence route to all classes of shippers.

The apple season being almost at hand, a word to the exporters of this commodity seems opportune. It is most advisable that apple exporters give shipments a reasonable time to make connection with the ship. The commerce of this country has increased to such an extent as to make it almost impossible for the railroads to keep up with it, and it is only fair to them that the shipping public should render every possible assistance to the transportation companies, and, in the matter of exports, this can best be done by shipping in ample time to enable the railway company to deliver the property to the ship.

Apples are handled most carefully at the steamship shed; mattresses are used to break the fall of the barrels when being unloaded from the drays; the ship's slings are carefully utilized in lowering the barrels down into the hold. A feature introduced by the Allan Line last year has proved eminently successful and that is the building of "trunk-ways" in the holds of the ship, thus ensuring a current of air throughout, and making the use of the sirocco fans much more beneficial than if the holds were closely packed with apples.

The discharging of ships is a most important operation, especially when unloading apples. This is most carefully watched so that damages are reduced to a minimum.

The services of the Allan Line have been very much improved for the season of 1907. The new S.S. "Corsican" rounds out a Liverpool service which cannot be surpassed on the St. Lawrence route. The steamers are "Virginian," 12,000 tons; "Victorian," 12,000 tons; "Corsican," 11,000 tons; "Tunisian," 10,576 tons; two 7-day and two 8-day vessels.

The advent of the "Corsican" makes it possible to place the twin-screw S.S. "Ionian," 9,000 tons, in the Glasgow service, and when the new twin-screw S.S. "Grampian" is placed in commission, September 21, the Glasgow service will be furnished by the "Ionian," "Grampian," "Pretorian," "Corinthian" and "Sicilian."

The favorite S.S. "Parisian" has been added to the London service, so that all three ports will be served with the best fleet the Allan Line has yet given to its patrons.

I do not see the advantage of an inspection station at Revelstoke. All fruit trees from the south are inspected at the coast. I find that all nursery stock from the east is free from disease.—A. Clemes, Spence's Bridge, B.C.

I have received a few copies of THE CANADIAN HORTICULTURIST, and think it is just the thing for fruit and flower growers.—A. E. Hennigar, Chester Basin, N.S.

Warranted to Give Satisfaction.

Gombault's Caustic Balsam

Has Imitators But No Competitors.

A Safe, Speedy and Positive Cure for Curb, Splint, Sweeny, Capped Hock, Strained Tendons, Founder, Wind Puffs, and all lameness from Spavin, Ringbone and other bony tumors. Cures all skin diseases or Parasites, Thrush, Diphtheria. Removes all Bunches from Horses or Cattle.

As a Human Remedy for Rheumatism, Sprains, Sore Throat, etc., it is invaluable. Every bottle of Caustic Balsam sold is Warranted to give satisfaction. Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

The Lawrence-Williams Co., Toronto, Ont.

Orchids Now is the time to place your orders for Spring delivery of freshly imported Orchids. **Our prices are very low, quality considered.** Also large stock of established Orchids on hand

CARILLO & BALDWIN
SECAUCUS, N.J., U.S.A.

THE AMATEUR'S PRACTICAL GARDEN BOOK

The bases of this work are the notes written by C. E. Hunn, gardener to the horticultural department of Cornell University. The leading feature of these notes was to answer the many questions about the simplest garden operations which continually present themselves to the teacher of horticulture. The regular price of this valuable work is $1.00, but we will send it free to any reader who will forward us three new one year subscriptions to The Canadian Horticulturist. Address

The Canadian Horticulturist
506-7-8 Manning Chambers, Toronto

Imperial Bank
OF CANADA

Established 1875

Head Office . Toronto
Capital Authorized, $10,000,000.00
Capital Paid-up, . $4,835,000.00
Rest, - - $4,835,000.00

Savings Department at all Branches
Interest allowed on deposits of One Dollar and upwards and credited four times a year.

The Canadian Horticulturist

Vol. XXX NOVEMBER, 1907 No. 11

The Operation of the Fruit Marks Act*

Alex. McNeill, Chief, Fruit Division, Ottawa

THE Fruit Marks Act has been in operation in Canada for six years. This is long enough to develop the weak and the strong points of the Act, though it may not be long enough to secure all the advantages that may arise from such legislation.

The Act prescribes that all closed packages, boxes and barrels shall be marked, first, with the name and address of the owner of the fruit at the time of packing; second, with the variety of the fruit, and third, its grade. One of four grade marks must be used, namely, Fancy, No. 1, No. 2 or No. 3. Any one of these grade marks may be used, together with any other designation that is not contradictory to or more prominently marked than the prescribed grade mark. The Act also declares that all packages, whether opened or closed, must be so packed that the face or shown surface fairly represents the grade of fruit all the way through the package.

Three grades are defined. The Fancy grade consists of fruit practically perfect. The No. 1 grade allows ten per cent. of imperfect fruit; ninety per cent. must be practically free from serious defects and of good shape and color. No. 2 grade consists of eighty per cent. free from defects that would cause material waste; and all the apples, whether defective or not, must be nearly medium in size for the variety. No. 3 grade is not defined.

The rest of the Act is taken up in naming the penalties and in providing machinery for its enforcement. The fine for violations is not less than twenty-five cents, nor more than one dollar per package.

The workman who packs and marks fruit contrary to the provisions of the Act, is subject to a fine not less than $5, nor more than $40. Anyone changing the marks upon packages after inspection is subject to a fine not less than $40 nor more than $500.

The Act is enforced by a staff of ten permanent inspectors assisted by eight temporary inspectors. These are distributed over the whole Dominion; but special attention is paid to the export points, particularly Montreal, St. John and Halifax. In the enforcement of the Act it has been found necessary to make an average of about fifty prosecutions a year; and it is noticeable that only in a comparatively few cases is the same man fined twice.

COOPERATIVE ASSOCIATIONS

There are now between fifty and sixty cooperative apple selling associations in operation in the Dominion of Canada, and in no instance has a cooperative association been fined. The interpretation of this fact is that the cooperative system removes very largely all temptation to mark or pack fraudulently; but perhaps even a more potent influence is in the closer supervision which can be given to the workmen by those in authority under the cooperative mode of work. Instead of sending out gangs of men into isolated orchards, the cooperative associations are gathering the fruit into packing houses, and having the work done under the supervision of competent and responsible men.

The Best of its Kind

THE CANADIAN HORTICULTURIST is the best publication of its kind in America. It should be the property of every man who calls himself a fruit man.—E. H. Wartman, Dominion Fruit Inspector, Montreal.

The success or failure of the Act must be judged by the evidence which is forthcoming from those who have watched the working of it, and who are affected by its results. The presumption is, of course, that the Act was framed for the benefit of the producers, middlemen and consumers. These three classes, therefore, should be heard from. The law was enacted primarily for the benefit of the Canadian people, but as the export feature of the Canadian apple trade is a most important one, the success or failure of the Fruit Marks Act has to do with the foreign countries using Canadian apples. Testimony, therefore, of those who buy Canadian apples in foreign countries will be of value.

ACT HEARTILY ENDORSED

The opinion of the Fruit Marks Act held by Canadian growers may be gauged very accurately by the criticism of the provincial associations of each of the provinces of Canada where fruit growing is an important feature. Without exception the provincial associations have expressed their hearty approval of the Fruit Marks Act and the way in which it is enforced. It would not be hard to make a list of many hundreds of growers who have during the past six years expressed individually their approval of the principles of the Act.

The retail fruit merchants represent perhaps more nearly the consumers. They have almost without exception expressed their approval of the principles of the bill, and they are at present engaged, through their Dominion Association of retail sellers, in introducing new features for the purpose of more effectively enforcing the Act locally; but there is no dissenting voice with reference to the principle of the Act itself, and there is no difference of opinion with reference to the very great improvement that the Act has made in the local fruit trade as well as the export trade.

OPINION OF THE MIDDLEMEN

The apple operators, who are the true middlemen, are not quite so unanimous. There are, indeed, among them a few who are not favorable to the Act, though I know of no one who objects to the principle of the Act, the objections being urged against special features or against what they deem the indiscreet enforcement of it. The fact that there is no one who criticizes the Act would be sufficient reason for an explanation of this want of perfect unanimity. The explanation is found, in the nature of the business and the character of many of the men who

* A resumé of an address delivered at a meeting of the American Pomological Society held at the Jamestown Exposition.

follow the employment of buying and selling apples. This business is largely speculative as usually conducted. The buying is done comparatively early in the season, before the volume of the crop or the market values can be estimated with any degree of certainty. Under such circumstances it is easy to see that sanguine buyers are frequently tempted to pay higher prices than the markets ultimately justify. When the time for marketing comes, the temptation is almost irresistible to so pack and mark these apples that the buyer can finish the transaction without serious loss. This is done by overfacing and overgrading. It will be readily understood that dealers of this unscrupulous type are not seriously in favor of any restrictions being placed upon their actions.

On the other hand, many of our merchants, and the best of them, look forward to the apple business as a permanent feature of their work, and so conduct it that they may continue in it from year to year. Such men do not find it necessary to secure a profit on each particular deal, but are willing in this, as in other commercial transactions, to average up the business of the season, and are satisfied if out of a large number of contracts the balance is upon the right side for them. They are, therefore, not tempted to practise the arts of the buyer who is in the apple business in such a way that he must secure practically a profit upon each transaction. Of course, there are a large number of itinerant buyers who have no status whatever in the country and who are willing to do anything in order to make a profit, having no reputation to sustain. The last two classes of buyers are not friendly to the Fruit Marks Act.

THE ACT IN FOREIGN LANDS

The reception of the Act in foreign countries has been even more enthusiastic than in Canada itself, inasmuch as the law with reference to the export trade is more effectively enforced than for the local trade. The following extract is from the London, England, *Fruit Grower*, dated February 11, 1904:

"The United States Consul in Edinburgh records the fact that Canadian apple imports are gaining a very strong position in the Scotch markets, in some cases supplanting the United States supplies. Mr. Fleming states that the system of inspection adopted in Canada and subsequently renewed at the British ports, has served as a guarantee to the buyers of Canadian apples, and has in this way proved useful to seller and purchaser."

Extract from letter of Thomas Russell, fruit dealer, Glasgow, Scotland: "In reference to the packing of apples in barrels there can be no doubt the passing of the Fruit Marks Act, 1901, has had a most beneficial effect in improving the grading and marking of the fruit."

Extract from an interview with Mr. Dennis, a broker of Covent Garden, London, Eng.: "I think the Act is a very great advantage, and if the trade on each side cooperate with the Fruit Department, I am sure it will be to the benefit of all concerned. There has undoubtedly been a vast improvement in the packing and grading."

SOME ADVANTAGES

It might be remarked here that the advantage accruing to the Canadian grower does not consist simply in the consciousness that he has not cheated anyone, either in the marking or packing of his apples. In fact, the Fruit Marks Act is in no sense of the word an attempt to make people honest by legislation; but, though it does not do this, it certainly does make them "act as though they were honest," as one of your college professors said when writing to me regarding the Act. The advantages accruing to the buyers of apples are evident. They are fairly sure that they are getting exactly what they have paid for. The advantages to the Canadian grower appear in the strongest light in the market reports of Great Britain.

In recent years, since the passing of the Fruit Marks Act, trade journals, and the brokers who furnish market reports, distinguish between Canadian apples and American apples. This can be seen in the case of the quotations furnished by Woodall & Company and James Adam & Son, Liverpool. A comparison of their reports for the season will show that Canadian apples now range about two shillings higher on the average than American apples; the difference being higher on some varieties than on others. It would not, however, be correct to credit the whole of this increased price to the Fruit Marks Act. In keeping qualities, at least, it is generally conceded that frequently the Canadian apple has somewhat the advantage and, too, the Canadian barrel is larger than the American; but the combined fact of the quality of the fruit and the size of the barrel still leaves a large margin that can only be accounted for by the uniform marking and packing that comes as the result of the enforcement of the Canadian Fruit Marks Act.

INSPIRES CONFIDENCE

That such excellent results can be secured with so small a staff is naturally a matter of surprise. The explanation lies largely in the fact that the great majority of the apple growers and apple packers prefer to pack and mark as prescribed by the Fruit Marks Act because it is the simplest and most direct method of securing a perfect understanding between the buyer and the seller. If the buyer wishes to look at the fruit, the face shows the quality of the whole barrel. If he does not wish to examine the fruit, the marking upon the outside will indicate with a fair degree of definiteness and accuracy the kind and quality of the fruit included in the barrel.

Due allowance being made for the honesty and straightforwardness of the Canadian apple packers, it is still found necessary to use the utmost discretion in distributing the time of the very few inspectors detailed for this work. The chief reliance is placed upon inspection at export points. A very large proportion of the fruit is shipped from the three ports, Montreal, St. John and Halifax. The inspectors are, therefore, concentrated at these points, the size of the staff at each port varying according to the volume of trade going forward at any particular time.

THE UNCERTAIN PROTECTS

In addition to this work, one or two travelling inspectors in each province are detailed to work in the fruit districts in such a way that any of the large packers are liable, at any time, to be visited by an inspector; and, though these visits are not likely to be made more than once or twice in a season, yet special information, which the inspectors may receive, results in closer attention to any particular packer who may need it. But, whether the inspectors are working in the orchards or packing houses or at the port of export, it is not the actual number of packages which they inspect that forms the safeguard so much as the fact that the packers throughout the whole Dominion know that there is always the possibility that their fruit may be opened and examined.

INSTRUCTION

Incidentally the travelling inspectors give a great deal of information with reference to grading and packing in the course of their visits from orchard to orchard, and from packing house to packing house. Not infrequently meetings are called where packers are numerous, and a special effort is made to secure uniformity in grading as well as the highest excellence in packing. Advantage is taken of such meetings as fall fairs and general meetings of farmers in fruit districts to give special instruction in grading and packing. The speakers at farmers' institute meetings are supplied by the department of agriculture with special literature regarding the apple trade, and copies of the Fruit Marks Act are distributed as widely as possible among growers and packers.

How to Pack Apples in Barrels*

IT is probable that a large part of the apple crop of Canada will be packed for market in the orchard, and excellent work can be done there, if proper provision is made for both picking and packing. The most convenient packing bench for orchard use is made on the same principle as the ordinary stretcher couch, or like an enlarged saw-

Lubsk Queen

A Russian variety of apple, promising on account of its beauty and hardiness.

horse, with a bolt where the supports cross each other. The upper points of these supports are joined with a two by two strip, as long as it is required to make the table, and on these pieces of timber a sheet of stout burlap is fastened securely. When this is opened and braced with light pieces below, it makes a very convenient packing bench, which can be carried about from point to point by a single workman, and which will not bruise the fruit in any way. A heavy plank should be provided for the barrels to stand on and upon which the racking can be done during the process of packing. Good work cannot be done if the racking is attempted directly on the ground, and even if it were possible, it would be likely to render the barrel unsightly with soil.

The barrel should be prepared for packing as follows: The quarter hoops should be forced down firmly, and three nails driven in in a slanting direction and clinched upon the inside. The face end of the barrel should be nailed and the headlines placed in it. The fruit for the face should then be placed neatly in the barrel. For this purpose it is well to support the barrel a few inches from the ground while performing the operation. The grade of the apples should be precisely the same in the face as in the rest of the barrel, and there should not be the slightest attempt to get high-colored or specially perfect fruit for the face. Each apple is laid with the stem end down, the stem having been previously cut off with a stemmer. Upon no consideration should a very large or very small apple be used to finish up in the centre of the face. If the apples are colored, the second layer should be placed so that the color of the apples will show through between the apples for the first layer. After this second layer is laid the apples may be turned in from the round-bottom baskets in which the graded apples have been placed. Never use any device that will require the apples to fall any distance into their place on the grading table or in the barrel. The presumption is that the grading has been done off the grading table, and that fruit of a perfectly uniform grade is put in each barrel. As each basketful is placed in the barrel, the barrel should be shaken (racked) slightly, not so as to throw the apples against each other or against the side of the barrel violently, but just sufficiently to settle them into place. It must not be supposed that this racking can be done successfully if it is delayed until the barrel is nearly full. When the barrel is full to within two or three layers of the top, a "follower," a round piece of plank slightly smaller than the head of a barrel, is placed on the apples, and the packer holds this firmly in place while he continues to rack or shake the barrel. The effect of this is to make a comparatively level surface upon which the last process or "tailing up" can be done. It is well to note here that the "follower" should be covered with heavy felt, such as is used by harness makers for pads.

TAILING

The process of "tailing" a barrel of apples is the severest test of a good packer. It consists in arranging the last two or more rows of apples so that they will project slightly above the barrel.

The characteristics of good tailing is to have the apples of the last two rows placed solidly and evenly, so that when finished the head will touch with the same pressure each apple exposed. This is a very difficult thing to accomplish, even where considerable time is taken in the operation, and it is only a skilful packer who can perform this operation quickly and well. It is a common fault with unskilled packers to allow one or more apples to project above the general surface. When pressure is put upon the barrel, these apples take the whole pressure at first, and are frequently crushed before the head is in place. It is advisable for young packers to take off the head of a barrel of their tailing occasionally and note the number of apples which have been touched by the head at the pressed end. If it should appear that a number of apples have not been touched by the head, and others are severely pressed, then they may rest assured that they have made a poor job of the tail. The aim should be to have equal pressure upon every apple in the last row.

It is not of material consequence whether the stem end or the blow end is placed up. It injures the apple somewhat less to have the blow end up, but the apples can be placed in a better position by having the stem end up. All stems showing either on the head or the tail should be removed with a stemmer. Do not attempt this work with a knife. This operation is frequently neglected, and long stems are pressed into the flesh of the apple, giving entrance to disease germs. Heads cut from heavy paper or from light pulp board are very desirable on both ends of the barrel.

PRESSURE

The exact pressure which must be given will depend somewhat upon the variety of the apple. If they are packed for storage, or for a short trip, then the pressure need not be so heavy. If they are packed for export, it will be better to press them heavily, but not so as to break the skin of any particular specimen. It has been the experience of the fruit inspectors, who open a great many barrels during the season, that slackness

Well-Packed Plums

in barrels is as often caused by over-pressing as by under-pressing. Over-pressing will break the skin of the apple, or bruise it severely, inducing decay in one or more specimens, which very quickly causes slackness. Certain varieties, too, will require and stand more pressure than others. The Spy has to be pressed very moderately, as the

* Extracts from Mr. McNeill's recent bulletin on packing apples in barrels and boxes.

apple splits readily under pressure; Russets, on the contrary, will stand much heavier pressure without breaking the skin, and appear to require heavy pressure to prevent slackness from evaporation.

FINISHING THE HEAD

In finishing the barrels, six nails in each head, if properly driven, are sufficient. Liners should be used invariably, and should always be kept damp. Few packers appreciate how much is added to the strength of the barrel by the use of the head liner properly placed. There is no excuse for nailing the second end hoops. It invariably spoils some of the apples and adds nothing whatever to the strength of the barrel.

Orchard Manures

The proper use of fertilizers and manures on orchard soils is a question of importance in successful fruit growing. Progressive growers know the value of keeping the soil fertile. Some men use commercial fertilizers; others prefer stable manures; many rely on cover crops alone; a few use a combination of all. THE CANADIAN HORTICULTURIST is desirous of publishing the experiences of its readers on this question. Letters are requested for publication. In our October issue a number of letters were published. The following are equally as valuable:

The well-known nurseryman and fruit grower, Mr. E. D. Smith, Winona, Ont., wrote: "My faith is pinned largely on cover-crops or green manuring. An orchard in good soil can be kept in good condition by turning under annually, a cover crop, and the one I would prefer would be the hairy vetch. One of the advantages of hairy vetch is that the seed will germinate where clover will not. Hairy vetch fills the bill in full. It is an excellent cover crop and affords the largest addition of nitrogen to the soil of any plant I know of, and when turned under like any other green crop fills the soil to a certain extent with humus. This enables the soil to absorb moisture, which is as necessary for the successful growth of fruit trees as the fertilizers themselves. Rye answers as a cover crop and makes humus, but adds nothing to the soil in the way of nitrogen. Clover is like hairy vetch, but the seeds germinate with difficulty in the summer time and you do not get the amount of nitrogen in the same space of time. We sow our cover crops in July."

The following information was taken from a letter received from Mr. I. E. Van Duzer, of the same place: "I have always had good results from using stable manures, but although I have experimented with a number of different kinds of chemical fertilizers, I have not received much benefit from any of them, and so have stopped their use entirely. I have found wood ashes as a fertilizer for fruit growers to be the best. One wagon load of good hardwood ashes is as valuable as four times the quantity of chemical fertilizers."

Fall Cleaning in Orchard and Garden

Prof. W. Lochhead, Macdonald College, Ste. Anne de Bellevue, Quebec.

INTELLIGENT fall cleaning of the orchard and garden is now recognized as a most important factor in successful fruit culture. After the rush of the shipping and storing of the fruit, there is usually a week or two of fine weather when rubbish can be raked up and burned, and the necessary late-plowing done. The value of careful fall cleaning lies chiefly in the fact that many of our most destructive insects and fungi are destroyed in the process. A few observations during the fall and winter will show how many insects pass the cold period of the year. The egg masses of the tent caterpillar, for example, will be found encircling the smaller branches. If these bracelets of eggs be removed, whenever seen, much serious injury will be averted the following spring, for each bracelet of eggs destroyed means the removal of 200 to 300 caterpillars. The egg masses of the fall canker worm also may be found in small flat masses near the forks of the smaller branches and twigs.

LESSENS CODLING WORM

The codling worm of the apple passes the winter in a cocoon under bits of bark and boards and in crevices.

Birds destroy many of the cocoons concealed on the trunks, but it is always advisable to scrape off the scaly bark, especially that near the ground, and to cut out all dead and cracked limbs. Codling worms are often carried into fruit cellars and store houses in the autumn. In the spring such cellars should be cleaned out thoroughly and the debris burned before the moths escape to the orchard.

Many species of cutworms pass the winter under old boards, clods, or other protection. A thorough cleaning in late fall will reveal many of these cutworms. Poultry are valuable helpers at this time. If these are not available, a poisoned bran bait scattered over the soil will produce good results.

White grubs, when present in the soil, may be destroyed in large numbers by late fall plowing. Tarnished plant bugs, the various leaf-hoppers, squash bugs, the cucumber beetles, Colorado potato beetles, grap vine flea beetles, plum curculios and others pass the winter in or under vegetable trash, and a thorough cleaning often works wonders in ridding the garden of these undesirable guests.

A thorough cleaning of the orchard and garden in late fall will also destroy many of the fungi which remain on the ground in diseased leaves and fruit. It is a well-known fact that many injurious fungi produce winter spores, and though the leaves decay, the spores do not. In early spring these will produce other spores, which soon spread to the early leaves. The various mildews, cankers, leaf-spots, and rots and scab are reproduced in this manner. The diseased fruit, plants and leaves should be gathered together and burned. They should not be thrown on the manure pile, for then the spores will be able to survive the winter and reproduce the disease the following season. Moreover, many fungi persist in the leaves as delicate threads, which develop rapidly in the spring, and produce spores. These spores are soon blown by the wind to the leaves, where they germinate and produce disease.

If a cover or mulch is desired to lessen root injury and prevent winter-killing, it can be applied after the cleaning has been done. If more care were taken in the annual fall cleaning of gardens and orchards, there would not be that urgent need for summer spraying to control the insects and fungous diseases. Another important factor in successful fall cleaning is to convince our neighbor that he also must clean his garden and orchard. Then what is left undone by the careful gardener will often be done by the winter birds. The chickadee, the nuthatch, the golden-crowned knight, and the woodpeckers, are most valuable agents in the destruction of insects. All winter long they hunt diligently over every limb for hibernating insects and insect eggs.

Every fruit grower should make an effort to entice the birds to the orchard, by tieing refuse meat and suet in the tree-tops. He would be rewarded abundantly for his pains.

Apples should be harvested while they are still firm. In this way only can the finest flavor and keeping qualities be obtained. It is poor economy to store bruised fruit because it not only fails to keep but it will decay other fruit that is put away sound. The keeping qualities of apples can be greatly prolonged by wrapping them in ordinary paper, with wax paper outside.

Some Enemies of the Plum*

V. R. Gardner, Macdonald College, Ste. Anne de Bellevue, Quebec

WE have often heard it said that "the poor are always with us." Equally true in the experience of the fruit grower is the statement that "insects and fungous diseases are always with us." There is hardly a cultivated tree, shrub or vine that is not subject

Fruit in Boxes, Showing the Proper Bilge

to the depredations of some pest. The annual loss occasioned by a single insect or single disease often is enormous.

There are few fruits more subject to the ravages of insects and diseases than the plum and, unfortunately, its leading pests are among the most difficult to control. In discussing the enemies of the plum, I shall mention but one insect and three diseases. There are other insects and other diseases that occasionally cause serious damage, but these are the most common and most important.

PLUM CURCULIO

By far the most destructive insect attacking the stone fruits is the plum curculio. This insect is the cause of most of our wormy plums and cherries, and also does some damage to peaches, apples, pears and quinces. The adult insect is a small beetle, an eighth to a fifth of an inch long and half as broad. These beetles appear in the spring about the time the buds begin to swell and for a while feed upon them. Spraying with Paris green or some other arsenite at this season is sometimes recommended but generally gives little satisfaction. Few of the beetles get enough poison to kill them. Soon after the fruit has set they commence to lay their eggs in the young fruit. The female beetle first punctures the skin with its long bill, then deposits an egg in the hole thus made, and finally completes the operation by making a semi-circular or crescent-shaped incision about the wound, this incision being a sixteenth to an eighth of an inch from tip to tip. Because of this crescent-shaped incision made in egg-laying, the curculio is often called the "Little Turk." This incision prevents the tissues of the fruit from swelling and crushing the egg. After "stinging" one fruit, the beetle goes to another and repeats the operation. The egg hatches in a few days and the young larva, or grub, burrows about and feeds within the fruit.

REMEDY FOR CURCULIO

As the eggs are laid inside the fruit and the young larvæ feed there, no spray can be made to reach them. It is possible, however, to prevent the eggs being laid in the first place; and this has been proven to be the only efficient method of control. At night the beetles become dull and sluggish, and if a tree infested with them is tapped or jarred in the early morning, many will drop to the ground. If sheets are spread under the trees before jarring, the beetles may be collected and destroyed. Where many trees are to be jarred it is most convenient to stretch sheets or canvas on a frame that may be carried from tree to tree. With an apparatus of this sort mounted on a wheelbarrow or other truck, it is possible to jar quite a number of trees in a short time. The work should be done in early morning while it is still cool, as the beetles are less active then, and jar off much more readily than later in the day.

Jarring must be kept up during the entire egg-laying season of the insect. This usually lasts from three to four or five weeks. It is a tedious, troublesome task, but it is the price that has to be paid for worm-free plums in regions where this insect has become serious. Fortunately there is only one brood during the year. The affected plums usually drop to the ground in the course of a few weeks and the larvæ crawl out and burrow into the soil. Here they remain for some time, later emerging as full-grown beetles, to spend the winter hidden in rubbish and in the spring lay eggs for another year's crop. As they enter the ground after leaving the wormy fruit cultivation at this season of the year, buries them so deeply that they cannot get out, and thus materially aids in their control. Clean culture, to deprive them of their winter quarters, is also advised.

Where a central packing house is used, the fruit all being graded and packed by experienced men, a more uniform grade is obtained, and at much less cost, than can be got by packing in the orchard. Another great advantage is that a larger quantity of one variety can be got together. All apple shippers recognize the fact that long lines or the larger number of packages of one variety always sell for more than broken lots or mixed varieties.—A. E. Sherrington.

Packing Apples in Boxes

J. A. Webster, Sparta, Ont.

Our apples are picked in bags and emptied into boxes, which are hauled on large, low, spring wagons to the packing house at the corner of the orchard. There they are packed. Canvas stretcher sorting tables and a cushioned packers' table for four packers are used. A box press and a nailing bench completes the outfit.

As the apples come from the orchard, the boxes are piled at one side of the packing house. Sorters empty the apples on the sorting table and grade them into No. 1's, No. 2's and No. 3's. The culls are placed to one side in baskets. The baskets of No. 1's and No. 2's are emptied on the packers' cushioned table in different compartments.

The packer wraps the apples and places them in the boxes in tiers. When

A Well Packed Box of Apples

full, he marks on the box the grade and the number of apples that it contains. The box is then taken to the press. The press-man puts on the cover and cleats and nails it. The variety of apple is then stamped on the box. The boxes are piled on the other side of the packing house, where they are ready to be hauled to the station.

* A portion of a paper read at the summer meeting of the Quebec Pomological Society.

Hints on Dahlia Culture*

Max Moineau, Toronto

DO not dig dahlia tubers until several days after the first frost has blackened the bush. Then, on the first fair day without frost, carefully dig the tubers and leave them two or three hours in the sun to dry. About mid-day is the best time to do this, as it is warmer. When sufficiently dry, shake off all the earth, and store the tubers in boxes of sand or sawdust, in a dark place in the cellar, in a temperature just high enough to prevent freezing in the coldest season. Be careful to label your clusters as you take them up, as a dahlia without a name is of little interest.

THE STORY OF THE DAHLIA

The dahlia is a most remarkable flower. Its history extends back beyond the year 1657. It is a native of Mexico, and many an Aztec descendant has made food of its tubers. In its original country it was called "acocotli," and "chichipatli." In Germany it is called "Georgina," after Professor Georgi, a distinguished botanist of St. Petersburg. In England and America, however, it is called "Dahlia," after Professor Andreas Dahl, a Swedish botanist, who did much toward its development. About the year 1789 it was recognized in Madrid as an eight-rayed flower. Twenty-five years later it bloomed in about a dozen well-defined colors. Then it began to double, and for another twenty-five years its development was of the many petaled form. In 1841, there were over 1,200 varieties. In 1872, the cactus variety was introduced, and since then the number of varieties runs up into the thousands. The very latest development is of the peony-flowering type, introduced in 1903 by Mr. Hornsveld, of Holland—a gorgeous decorative dahlia, that bids fair to become very popular.

HAS MANY VALUABLE FEATURES

Than the dahlia, perhaps no other flower varies so greatly in form and color, or has so many possibilities. It can be propagated from seed, from tubers and from slips. It can even be grafted, in a certain way. It will also sport on its own bush, throwing several different shapes and shades of color from the same parent stalk. It can be grown as beautiful as the peony and as delicate as the rose, the secret of this remarkable achievement being enveloped in its culture.

Dahlias will grow almost anywhere, and in any kind of soil, but to get the best results, everything must be made congenial. Open sunlight and a sandy soil is imperative for the most ideal culture, while a proper fertilizer at the proper time will enhance the beauty of each bloom.

RESPONDS TO CARE AND ATTENTION

It is surprising how little is known of the character and habits of the dahlia by the many, aside from professionals, who pretend to cultivate it. The purchasing of a tuber and the planting of it in some indifferent way, at any time after the danger of frost has passed, seems to be the general idea among a certain class of amateurs. This, however, is not conducive to the best results. The dahlia well repays any attention expended upon it, and the best of care in its cultivation will be rewarded tenfold. It should be given a prominent place in the gardens of all amateurs.

*In our next issue the author of this excellent article will give information on cultural directions and on the origination of new varieties.

What Amateurs Can Do in November

EARLY this month is a good time to prepare for winter. Make everything in the outdoor garden snug and secure. Gather and burn all diseased leaves and roots. Rubbish affords excellent hiding places for insects.

If you have not already applied a top-dressing to the lawn, do so at once. Manure may be used or an earth mulch as recommended in these columns many times. Another excellent dressing that is permanent in its effect, and one that gives particularly good results on light and dry limestone soil is prepared as follows: Finely sifted or screened earth, five parts; sulphate of ammonia, one part; Kainit or wood ashes, one part; bones reduced by acid, two parts; soot and fine coal ashes, one part. Supposing each part to equal twenty pounds, we get here 200 pounds of a mixture that forms a good, active and lasting manure for one acre of lawn. It must be used in proportion to the extent of the ground.

Many plants on the lawn and in the garden will require protection in winter. Do not apply it until the ground is frozen. Plants often are injured by being covered too early.

Probably the best mulch for perennial borders is well-rooted stable manure, because it can be spaded to feed the plants next spring when they need it most.

Fall plowing or digging, where practicable, is well worth while, even if nothing is to be planted It aids in pulverizing the soil, which will be found in excellent condition in spring. It is a good plan to dig the garden spot each year to turn under the weeds.

There is still time to plant bulbs. Better results are secured by planting earlier in the season, but the work can be done now if the beds are covered as recommended in an article on bulb planting on another page.

FALL WORK WITH FRUIT

Few varieties of strawberries are capable of withstanding the hardships of our winters unless protected. It is not so much the heavy freezing that does damage; it is the alternate freezing and thawing of early spring. Do not apply the protection until the ground is frozen. Give a top-dressing of from four to six inches. Stable manure may be used. It will not only protect, but will furnish fertility to the soil. There is one disadvantage, however, and that is the fact that it is apt to contain many weed seeds. For this reason, most gardeners prefer to apply clean straw or hay. Do not put on too heavy a cover. Work it in the bare places between plants and place sufficient on top of the plants to hide them. Light straw can be used in greater quantities than some of the heavier mulches.

It is well to place a few forkfuls of manure around raspberry and blackberry bushes and young fruit trees. Old blackberry and raspberry canes may be removed, but it is not well to cut back the new canes until spring, as in the event of winter-killing, the workwould have to be repeated. While fall pruning can be done often with success, it is better, as a rule, to leave the work until the spring. The more canes left over winter, the better will the snow be held. Snow is the best protection that the roots can have.

Currants and gooseberries may be planted in November. They are hardy. Prune them any time after leaves fall.

As a preventive against the ravages of mice and other vermin, remove all rubbish from among the fruit bushes and trees. Such material, if left, will serve as a harboring place. Young trees should be protected by wrapping the trunks with building paper, and a small mound of earth should be thrown around the bottom to prevent the mice from gaining entrance.

Attention should be given to work with vegetables. Dig the celery and store it in cellar. Place the stalks upright and close together with the roots in sand. If necessary to water, which is indicated by the tops showing signs of wilting, apply the water at the roots. Do not sprinkle the tops. It induces decay.

The Plant Groups at the Canadian National Exhibition in September

All garden roots should be stored with a view to keeping them fresh and juicy until required for use. Beets, carrots, parsnips, salsify, celeriac and winter radish keep best when buried in light earth. Provide a cool, dark place with good drainage and with air dry enough to prevent rotting but not so dry as to cause shrivelling. See that the roots are protected from the light or they may grow. Parsnips need not be pulled right away. They are improved by a touch of frost. In fact, they can be left in the ground all winter. Turnips and potatoes can be stored on the cellar floor without covering.

After gathering the crops, remove and burn all weeds, especially those that bear seed pods. Then spade or plow the garden and turn under all the manure you can. Every hour's work put on the garden this fall means just that much less to do next spring.

THE WINDOW GARDEN

Make a compost of soil for next season's potting. Obtain sod about four inches in thickness. It should be of a loamy nature. Avoid taking soil where weeds, such as couch grass, has been growing. Stack two layers of sod, with the grass downwards, and cover this with a five or six-inch layer of stable manure. Continue successive layers of these materials until the pile is large enough. Make the pile outdoors. Cover with branches of trees to keep off chickens and animals. The compost will be ready for use next May, or earlier.

For potting plants this fall and winter, use a compost composed of three-fourths turfy loam, equal parts of cow manure and leaf mould, with a little bone meal and sand added. Mix well together, and it is ready for use, and is suited for all free-growing plants.

Before placing tender pot hydrangeas in cool winter quarters, be sure that their growth is well ripened. To insure this, leave the plants out as late in the season as possible. Bring them in before they are exposed to more than six or eight degrees of frost.

A short period of rest is necessary for fuchsias and pot roses that have been kept growing all summer. A fairly moist cellar is the best place for them.

Keep oleanders in a light, fairly warm room or basement A temperature of forty-five or fifty degrees and a moist atmosphere suits them. Sponge the leaves occasionally during the winter with water or soap and water.

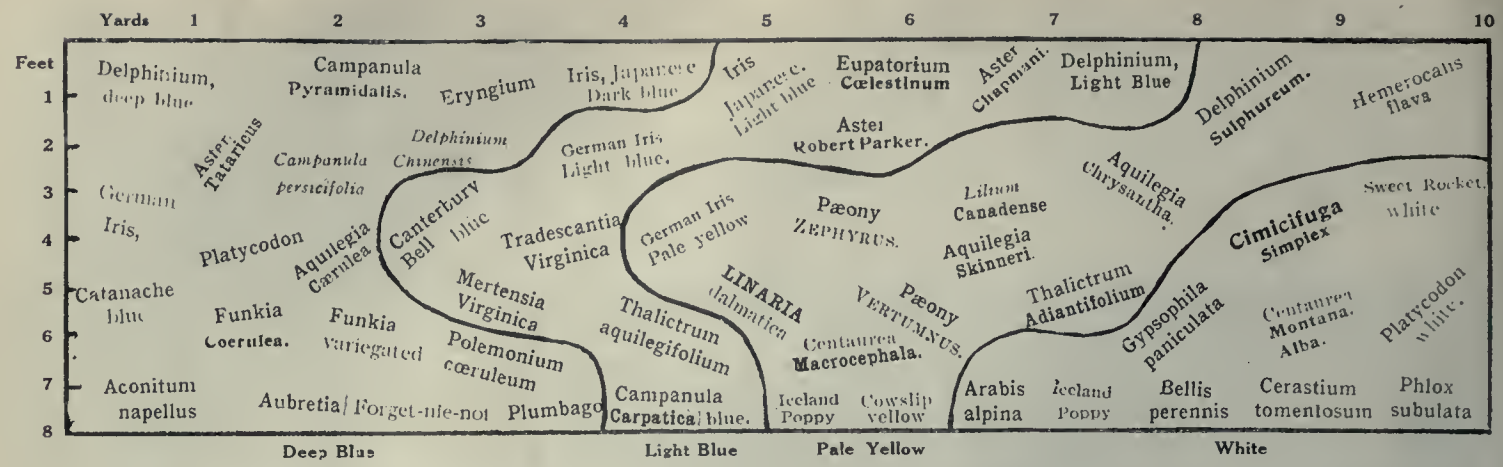
Old plants of geraniums can be taken from the bed or border, cut back and potted in sand or sandy soil, and be kept with very little trouble. Do not break the roots when digging. Cut back the tops to two or three inches of the main stem. Shorten the roots a little if long. Plant in four-inch pots, water once and stand the pots away. Renew the watering only when the soil gets quite dry. Keep in a temperature of fifty degrees.

Increase the temperature in the window garden as the weather grows colder. Give the plants an occasional draught of fresh air. Do not water every day, as much water tends to sour the soil, and prevents satisfactory growth. Sometimes it induces disease. Water only when the plants need it, and then do not postpone the operation.

Chelone—Turtle Head.—*Chelone Lyonii* is the best and showiest variety, being a perennial of great merit, a very profuse bloomer, producing large aggregate flower heads of a nice rich violet-purple. It blooms during September and October. It is a gem for the border and for cutting for large vases. It blooms to a height of four feet.

Great Results on a Small Area

This garden was made and cared for by Mr. Jas. A. Wiley, of St. Catharines, Ont ,and his wife, both of whom are enthusiastic horticulturists and active workers in the St. Catharines Horticultural Society.



An Arrangement of Plants for a Hardy Border

E. Byfield, Toronto

THE accompanying plan of a perennial border is intended to be a suggestive arrangement of plants which will ensure harmony of color and continuous bloom in all parts of the border throughout the entire season. Although in four parts, the plan represents one border only. Each part is separate but is intended to blend in order so as to make one continuous border. The border is forty yards long by eight feet wide, and is filled with plants found to winter over successfully in our climate. Hardy spring-flowering bulbs, such as tulips, narcissi, crocus and so forth, should be planted in liberal masses among the plants, the bulbs remaining permanently in the ground. The entire ground should also be carpeted with low growing and creeping plants similar to those at the front of the border. Tender bulbs and tuberous rooted plants, such as gladioli, tritomas, dahlias, and so forth, may, with advantage, be planted here and there, in appropriate places, also showy annuals, such as asters, *Salvia splendens*, *Phlox Drummondi*, pansies and so forth, care being taken to place these extra plants among the hardy ones of similar colored bloom.

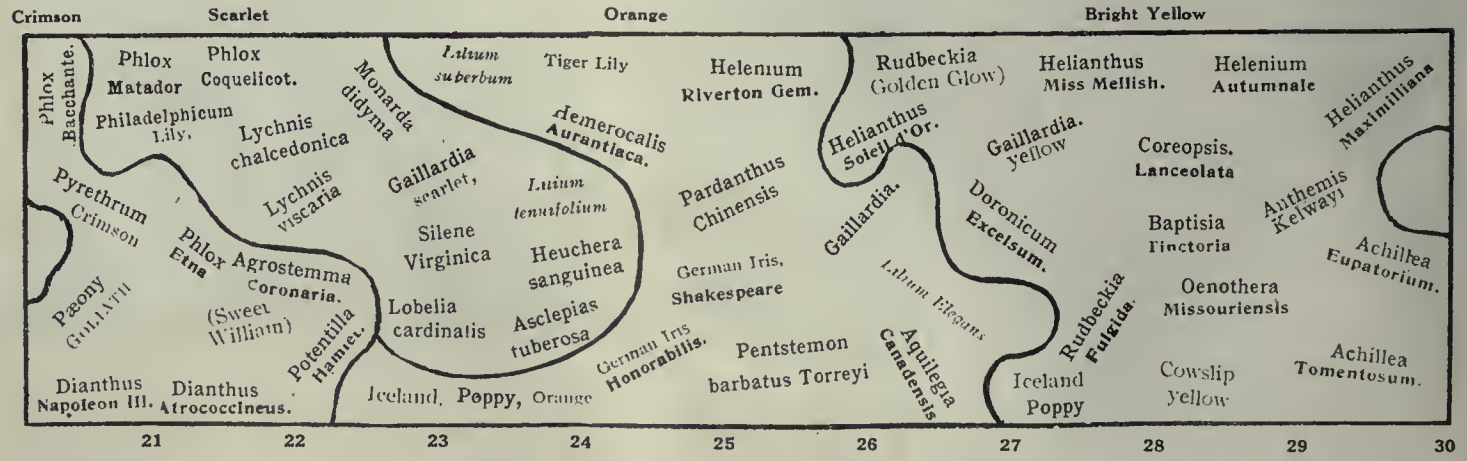
Some Pointers on Window Gardening

NOT all plants do well in north or north-east windows. Ferns and begonias, callas, *Primula obconica*, Chinese primroses and asparagus will flourish. The Pierson fern is another excellent subject. If you want some vines to train about the upper portion of the window, use one of the ivies. Plants having richly colored flowers require more sunshine than such a location affords.

In a window of this kind, *Asparagus plumosus nanus* can be grown to perfection. It will furnish charming material for decorations for the table. There is no better plant for the purpose. Its dainty, delicate foliage and its exceedingly graceful habit of growth make it an ideal table plant. It is ornamental in itself, but if a touch of bright color is desired, it can be supplied by thrusting the stems of a few carnations or roses among the wealth of airy foliage. Grow it in a soil of sandy loam, well drained. Shower frequently to keep down red spiders. It is best grown in six-inch pots until the plants become too large for table use, then separate them and make several plants out of each old one. When using for table decorations, keep a plant on the table only for a day or two, then return it to the window and let a fresh one take its place.

REX BEGONIAS

Among the many excellent subjects for window gardens are Rex begonias. There are various ways of growing and handling them. If grown in a soil of leaf mould and sand with good drainage, if watered moderately and kept somewhat back from the light, they will do well. Plants that do not have good drainage are almost certain to lose their foliage. The important point is to let them alone after they are started. Do not experiment with them. They will



take care of themselves when kept moist—and moist only—at the roots. It is important to see that the soil never gets really dry. It is advisable, also, never to allow any water to get on the leaves. When sweeping or dusting it is well to throw a thin cloth over the plant.

WATERING PLANTS

At this season of the year, care should be taken not to over-water plants of any kind. Give enough to saturate the soil throughout. Wait until the surface appears dry before applying more. An over-supply has a tendency to sour the soil, thus bringing about a diseased condition of the roots.

Plants in hanging pots and baskets should get all the water they need and no more. They will dry out much more quickly than ordinary plants, because they are near the ceiling where the temperature is much higher than at the window-sill. Evaporation is accelerated, also, by the plants being exposed on all sides. Hanging baskets may be watered by the use of a simple device. Take a small can or cup and punch holes in the bottom of it. Make the holes small at first. Fill the can and place it on the surface of the soil. Vines can be so trained as to hide them. Observe the effect carefully. It will be necessary to make the holes larger if not enough water passes through to keep the soil moist.

ARRANGEMENT OF PLANTS

In the window garden, it is a good plan to arrange the smaller plants in front near the glass, and the larger ones at the sides and rear. This enables all of them to get the benefit of the light. Do not allow the plants to become one-sided by being drawn towards the light. Turn them at least once a week, so that all sides may have a chance at the sunlight.

USE OF FERTILIZERS

Fertilizers should be used with care. Because a plant is not growing, many amateurs will feed it with rich manure or fertilizers. This is a mistake. When a plant is not growing, it needs no fertilizer, because it is not in a condition to make use of it. Fertilize only those plants that are already in or have begun active growth. When a plant begins to grow, weak applications are in order. Increase the strength as the plant develops. Forcing rapid growth means weakness, from which there is almost sure to be a re-action sooner or later.

Veronica—Speedwell

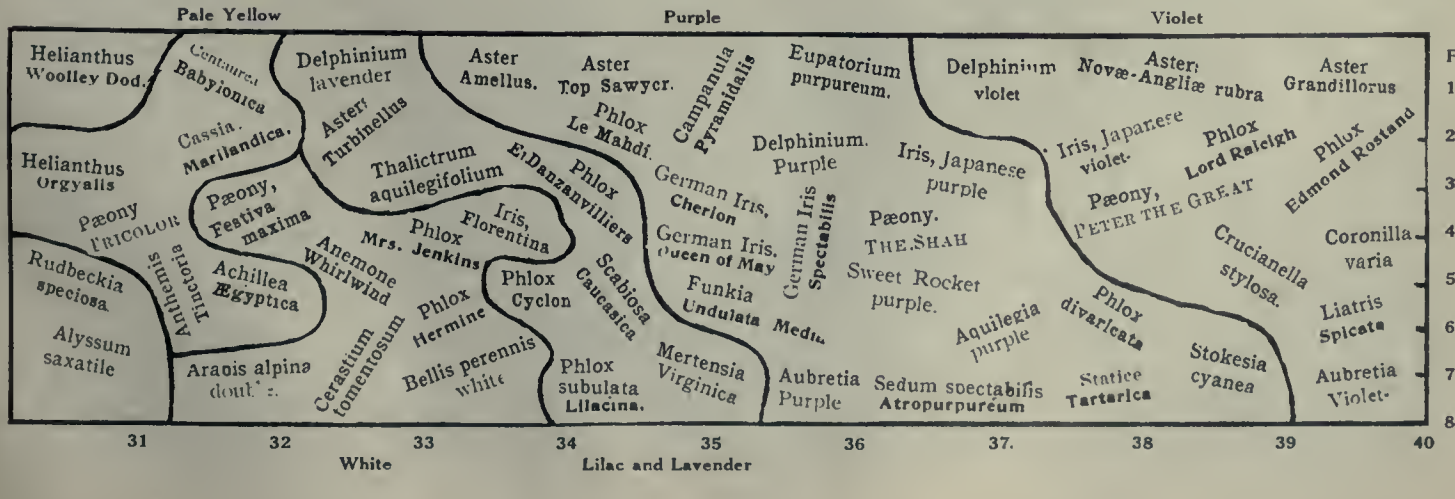
Roderick Cameron, Niagara Falls, Ont.

There are many varieties of this excellent genus of plants. Some of them are the most persistent blooming plants that we have blooming from early summer to late fall. They grow from six inches to three feet high.

The following will be found to be a good selection: *Veronica apicata*, three feet, July to October; *Veronica maritima*, three feet, September and October; *Veronica gentinoides*, 12 inches, May and June; *Veronica gentinoides variegata*, the same as last, but variegated foliage; *Veronica incana*, 12 inches, deep blue flowers, grayish foliage, July and August; *Veronica longifolia*, three feet high, one of the best of this genus introduced, blue flowers in spikes a foot long; *Veronica rupestris*, four inches high, creeping habit, one of the best, June. All of the above varieties are good for cutting.

Japanese Bell Flower.—These plants are generally included among the campanulas, which they resemble, and are among our choicest perennials. There is nothing better as a cut flower. They grow to two and three feet high. *Platycodon grandiflora* has large, deep blue flowers. The variety "alba" is the same, except that the color is white. There are also semi-double forms, flowering during August and September.

Heliopsis—Ox Eye.—*Heliopsis Pitcheriana* grows from three to four feet high and blooms all summer, making it doubly valuable as a means of keeping the border bright. The flowers are yellow, and about two inches across.



Bulbs for Spring Flowering*

R. B. Whyte, Ottawa

TO secure good results in bulbs for spring flowering, they should be planted in a well-drained sandy loam. When applying manure, see that it does not come in direct contact with the bulb or decay will result. It is best to prepare the land for bulbs a year in advance. If this cannot be done, use well-rotted manure, dug deeply into the soil so that it will be below the bulb. When light soil is not available, the proper texture may be approached by adding sand to heavy soil.

PLANTING

It is best to plant bulbs as soon as the bulbs can be secured in the spring. By so doing, they will have a chance to become established before freezing. When it is not practicable to plant early, it is necessary to mulch the bed with a heavy dressing of strawy manure. This will prevent the soil beneath being frozen as early in fall as it would be if left bare and it will allow the bulbs to make some root-growth before winter.

The proper depth to plant is determined largely by the size of the bulbs and the character of the soil. Small bulbs, such as crocus, may be planted two or three inches deep. Tulips are best planted four or five inches deep, and hyacinths and narcissi five to six inches and about the same distance apart. Bulbs may be planted deeper in light soil than in heavy. Cover for winter protection.

For best effect, avoid planting in a straight, single row. Plant in beds or groups. Bulbs show to good advantage when planted in clumps between perennials in a border.

TULIP CULTURE

After tulips have bloomed in spring, they may be left in the soil or lifted and heeled-in. The latter practice gives the best results. If the bulbs are left, however, the practice should not be followed for more than two or three years in succession.

There are innumerable varieties of excellent tulips. The following is a good selection of singles: Joost Van Vondel, white; Cottage Maid, white and pink; Jacht Van Rotterdam, white and violet; Standard Silver, white and red; Chrysolora, yellow; Keizer Kroon, yellow and red; Thomas Moore, orange; Duchess of Parma, orange and red; Proserpine, rosy carmine; Vermillion Brilliant, red; and Vanderneer, violet.

An excellent class of late tulips are called the "Mayflowering or Cottage" Among the best of them are: Snowdon, white; La Panachei, white and red; Silver Queen, white and rose pink; Sunset, yellow and red; Parisian Yellow, yellow; La Merveille, orange red; Macrospila, red; Elegans, dark cardinal; Gesneriana, crimson scarlet with blue base; Gesneriana rosea, rosy cardinal; The Fawn, reddish fawn, shading lighter to edge; and Fairy Queen, violet rose with yellow edge.

Among other classes of single tulips are Byblooms, Bizards, Darwins, Rembrandts, Parrots and Botanical. The double tulips also are beautiful. Among the best of the early ones are: Alba maxima, white; Murillo, white and rose; Couronne D'Or, yellow and orange; Helianthus, red and yellow; Imperator rubrorum, scarlet; and Purple Crown, purplish red. The best late doubles are: Yellow Rose, yellow; Rose Pompom, cream and rose; Marriage de ma Fille, red and white; Peony Rose, red; Ovenwinnaar, violet; and Admiral Kinsbergen, brownish violet.

Narcissi, Tulips and Hyacinths in Spring—Prepare Now for a Similar Showing

This illustrates a portion of the bulb borders and clumps in garden of Mr. R. B. Whyte, Ottawa. In the background is a rear view of the residence of Sir Wilfrid Laurier.

THE NARCISSUS

In many respects the narcissus is the best of the spring bulbs. It is lasting in its properties. Its gracefulness and delicacy of color make it very popular. Its planting and treatment is similar to that recommended for tulips. An excellent general list of varieties for amateurs is as follows: Emperor, light yellow; Victoria, early perfumed, yellow and white; Sir Watkin, yellow; Barri Conspicuus, yellow, with orange scarlet cup; Frank Miles, yellow; Leedsi Amabilis, sulphur white; Von Sion, double yellow; Sulphur Phœnix, white with sulphur centre; Monstrosus, very large yellow; and Poeticus, Ornatus and Biflorus in variety.

HYACINTHS

Hyacinths are used chiefly for bedding. They should be taken up every year. Among the best white varieties are La Grandesse, Queen Victoria and Mina; pink, Fabiola, Norma, Gigantea and G. a. merveille; blue, Grand Lilas, Czar Peter, La Peyrouse and Grand Maitre; red, General Pellissier, R. Steiger, Lord Macauley and Roi des Belges; yellow, La Pluc D'Or, La Citronien, King of Yellows and Sonora.

In addition to the foregoing, there are many early flowering small bulb flowers, such as Bulbicodium vernum, snowdrops, crocus, scillas, chionodoxas, puschkinnias, erythroniums, grape hyacinths, frittillarias and trilliums.

*From an address delivered recently before the Toronto Horticultural Society.

False Dragon Head

Roderick Cameron, Queen Victoria Park, Niagara Falls, Ont.

I grow three varieties of this plant, but I prefer the native one, *Physostegia Virginica.* When grown under good cultivation and the right kind of soil and conditions, there is not a better perennial in my large collection. Grow it in a damp, loose, deep soil, and you will be pleased with it. It grows to four feet high and blooms during August and September. Its flowers are a bright pink color. There is a white variety, although not so attractive. It is an excellent plant and grows about two feet high.

Another variety, *Physostegia denticulata,* is between the two in color. It is a light pink, and grows about four feet high. It is an excellent variety for cutting blooms for vases.

A Simple Experiment With Fertilizers

IT is probable that the problem most troublesome to the average gardener is the proper use of fertilizers. In a general way, most growers agree on the value of fertilizers, but in actual practice satisfactory results are not always attained. So many factors enter into the proper methods of application that oftentimes one is at a loss to know what to do. Soils and crops vary so widely in their demands for fertilizers that random applications are of little or no avail. It is necessary to consider the use of artificial manures from all viewpoints before they can be applied with economy and intelligence.

Fertilizer Experiment with Radishes. Appearance of Plot One Week After Sowing Seed

For general use it is usually advisable to apply one of the so-called complete fertilizers, such as barnyard manure or one artificially prepared. If a luxuriant growth of stalk and leaves is wanted in the crop rather than roots and fruit, an application of nitrogen in some form usually is needed. Should the soil be producing leaves and stem at the expense of fruit and root, nitrogeneous fertilizers should be withheld or used sparingly, and potash or phosphoric acid, or both, used instead.

Rightly used, artificial fertilizers are a valuable means of furnishing more or less immediately available food for crops. It must be remembered, however, that plant food alone does not completely solve the problem of soil fertility. Supplying plant food is only half the battle. In addition to the presence of available plant food, fertility or crop productiveness is made up of many factors — mechanical condition, warmth, ability to retain moisture, content of bacterial life and so forth—and these are influenced by the amount of humus present. Believing this, and desiring to assist those gardeners who are not acquainted with the character of fertilizers and their use, THE CANADIAN HORTICULTURIST conducted a simple experiment that may be of interest. The work was done not with the idea of presenting anything new, but to illustrate the action of a few fertilizing materials, complete and special, on vegetable crops. It may serve as an object lesson to those gardeners who hear and read about the action of fertilizers and are not convinced. The crop chosen was radish; the soil, light sandy loam.

PLAN OF EXPERIMENT

The plan of the experiment was simple. It could be duplicated easily on the home soil of any professional or amateur gardener. In August a plot of ground about fifteen feet long by eight feet wide was staked and made into a good seed bed. Ten rows were marked, each eighteen inches apart, and numbered. Those with odd numbers were not fertilized and served as checks. The even-numbered rows received applications of fertilizers. Row No. 2 was treated with nitrate of soda at the rate of 100 pounds an acre. Row No. 4 was given superphosphate at the rate of 400 pounds an acre. Row No. 6 was intended to be fertilized with muriate of potash at the rate of seventy-five pounds to the acre, but, by mistake, an application of potassium chlorate ($K Cl O_3$) was given instead, with the result shown in the accompanying illustrations. Row No. 8 was treated with Arnott's Garden Manure. Row No. 10 received a good dressing of well-rotted barnyard manure. All the fertilizers used in the work were kindly furnished gratis to THE CANADIAN HORTICULTURIST by Dr. Arnott-

Same Plot From Another Viewpoint. Two Weeks After Sowing Seed

The method of applying each fertilizer was similar. The seed, which was supplied by J. A. Simmers, and of the variety Early Scarlet Turnip, white tip, was sown in each row at an even depth. The plot was kept free of weeds and in a state of tilth by hand hoeing.

How the Plot Appeared at the End of Third Week

SOME RESULTS AND WHAT THEY TEACH

Before recording the results of this simple experiment, we must bear in mind the fact that similar results would not be secured in all localities. Differences in climate, soil, local conditions and manner of performing the work, would produce different results. It is possible also that, with rows only eighteen inches apart, even though alternate rows were unfertilized, fertilizers on adjoining rows may have influenced the results. Even the hoeing of the ground may have caused some spreading. Knowing this, and the fact that this experiment was performed but once, we would not presume to advise gardeners to act on the conclusions that may be drawn. The chief reason for mentioning the experiment and its results is to create a desire among gardeners to conduct similar experiments with their own soils.

At the end of the third week after sowing the seed, average specimens of the radishes grown in each row were selected and photographed as shown in one of the accompanying illustrations. Bunch No. 1 was taken from the row fertilized by barnyard manure; No. 2, Arnott's; No. 3, superphosphate; No. 4, nitrate of soda; and No. 5, unfertilized. On comparing them, it would seem that this particular soil required an application of superphosphate to produce radishes of the best shape, size and quality. The barnyard manure produced radishes that averaged rough and irregular in size. Arnott's Manure gave results almost equal to the superphosphate; the radishes were slightly smaller in size, but even, and the texture was excellent. Nitrate of soda made the growth too rapid and, as may be seen in the illustration, the radishes assumed a shape undesirable and foreign to the variety type. The radishes grown in the rows that were unfertilized were fair but did not average nearly so good as those fed with superphosphate or Arnott's Manure.

A glance at the foliage in the illustrations will show that it also was affected by the fertilizers. That produced by barnyard manure and nitrate of soda was luxuriant, long and spindly—produced thus at the expense of body in the roots. The foliage in the check rows was somewhat of the desired character. That grown on the superphosphate and Arnott's Manure rows was more stalky and more in accord with what is wanted. These observations would seem to show that the heaviest and tallest growth of leaves does not always spring from the choicest roots.

Readers of THE CANADIAN HORTICULTURIST are requested to conduct a similar experiment with this or some crop on their own soils, and to tell, through our columns, their experiences. Record the results as accurately as possible, and publish them for the benefit of others. A few illustrations would serve to make the articles more interesting.

How Average Bunches From the Different Rows Appeared

The fertilizers that gave these results were as follows: 1, Barnyard Manure; 2, Arnott's Garden Manure; 3, Superphosphate; 4, Nitrate of Soda; 5, Unfertilized.

Wintering Cabbage

A good cool cellar will keep cabbage through the winter with but little loss. In putting cabbage in the cellar for use in early spring, leave the roots and most of the leaves on, set together as close as possible with roots on the ground and heads upward.

For pitting out of doors, select a dry place for the pit, dig out a few inches deep and two feet wide, as long as will be required to hold the cabbage. In placing in the pit put heads down, letting roots extend upward and close together. Cover with clean straw or other material and then with sufficient earth to prevent freezing. When wishing to get at the cabbage, open the pit at one end and when enough has been taken out for present needs, close up the end with straw or other material to prevent freezing. This is practised in our most favored districts.

Market Gardening on Up-to-date Principles

FEW classes of people work as long hours and as hard as market gardeners. Many gardeners work harder than is necessary. They have got into ruts. Because they have been brought up to grow their crops in a certain manner and trained to perform most, if not all, of the work themselves, they have come to believe that it is the only thing for them to do. Were they to use a little more judgment, were they to devise methods of economizing labor and saving time, their work would contain more of pleasure and less of drudgery.

Few market gardeners have as up-to-date methods or better establishments than Mr. Frank Williams, of Ottawa South, a former president of the Ottawa branch of the Ontario Vegetable Growers' Association. A representative of THE CANADIAN HORTICULTURIST, who spent a morning with Mr. Williams, was much impressed by what he saw and heard. Mr. Williams is a thinker. He has introduced many new ideas into the management of his market garden. The unusually fine establishment he has, bears evidence that his ideas have been both practical and a success.

In the first place, Mr. Williams has a nice house with pleasing surroundings. Flowers and a neatly kept lawn add to the attractiveness of the home. In the second place, Mr. Williams believes in marketing his goods in respectable and up-to-date express wagons and with good horses, and above everything else, a clean, neatly dressed, obliging driver. "There is no sense in going around in dirty old clothes and with ramshackle wagons," said Mr. Williams. "The public will value us just as we value ourselves. Unless we show the public that we respect ourselves and our business, you can depend upon it that they will not respect us. There is no reason why the average vegetable grower should not be able to go into a bank or business office and make as favorable an impression as any business man."

A LARGE ESTABLISHMENT

Mr. Williams' establishment comprises thirty acres of vegetables. During the busy season he employs ten to fifteen men, and in winter five and six. While Mr. Williams is able to use a hoe as well as any of his men, he does not consider it advisable to do so any more than he can help. He believes that his time can be spent to better advantage in directing the work of his men. His father was the first market gardener in the vicinity of the city of Ottawa. "I can remember," said Mr. Williams, "when there were log fences on Maria St." Maria Street, it might be explained, is now one of the most central streets in the city of Ottawa. Its name has been changed recently to Laurier Avenue.

Boiler House and Greenhouses on Mr. Williams' Establishment

The most striking feature of Mr. Williams' establishment is his new boiler house and greenhouses. These are the finest owned by a vegetable grower that our representative had ever seen. One of the houses is 30 x 176 feet, and runs east and west. A second house that has been up three years, is 40 x 165 feet.

The new boiler house is at the end of the greenhouses and is situated on the side of a hill. It is twenty-six feet by sixty feet and two stories high. The walls in the foundation are one foot thick and twelve feet high and are made of concrete. It is possible to drive into the basement, where there are two boilers that are used to heat the greenhouses. This enables Mr. Williams to handle the coal and ashes and perform other work incidental to the management of boilers, to the best possible advantage. In winter, a market wagon is driven into the basement and loaded with vegetables in a warm room without danger of the vegetables being injured by frost.

One of the boilers in the boiler house is forty horse power and the other eighty horse power. "Many growers," said Mr. Williams, "make a mistake by putting in small boilers. A few years later, their business has grown and they are forced to tear them out and replace them with larger ones. Our boilers are so arranged that we can add more easily and without much expense."

A REPUTATION FOR QUALITY

Owing to an effort having been made at one time to force Mr. Williams out of business because he would not agree to have his vegetables sold by a company, he was forced to adopt new methods of disposing of his crops. He decided to establish a reputation for quality. With that object he made it a practice to grade his vegetables and fruit. The poorer grades were sold across the river in Hull among factory employees and mill hands. The better grades had a card attached to them, bearing the words, "Frank Williams, Rideau Gardens, Ottawa South," and were sold in Ottawa. It was not long before there was such a demand for his produce he had little difficulty in disposing of all he could raise, and at high prices. Mr. Williams makes a specialty of melons. He sells melons in Toronto to a fancy trade at higher prices than the Toronto market gardeners receive.

"There is no use," said Mr. Williams, "in a man trying to grow all kinds of vegetables, because no man can do it successfully. He should pick out a few of the crops which are the most profitable, and for which his land is best suited, and specialize on them. In all other lines of business, men are specializing more and more. It is time that the vegetable growers did the same."

In setting out his lettuce, Mr. Williams sets the plants six inches apart. His lettuce weighs from one pound up

to two pounds a head. "We set our lettuce that far apart," said Mr. Williams, "because we get healthy plants and they have room to mature. There is also less danger of disease, and the plants have room to breathe. Boston head lettuce is set nine inches apart."

ECONOMIZING GLASS

At one time Mr. Williams had 1,000 three-foot-square glass frames that he used early in the season in the raising of melons and cucumbers. They were used for only four months in the year, being stored from the first of July to the first of March. Feeling that he was losing money by having all this glass stored idle so long each year, he decided to try and make a double profit out of it. With that object, he put up an extra greenhouse and set the rafters to suit the size of the sash. A crossbar was provided for every sash. A button is attached to each sash which projects from the end. This button catches on the crossbar, and with a piece of wire serves to hold the sash in place. Last summer a crop of tomatoes was grown in the house. Two crops of lettuce are taken out of the house from February to May, the best season of the year. The second crop is a little more than half matured when the glass is taken off. At that time of the year, the sun is too strong for lettuce without shading, and he finds that the crop matures even better with the glass off.

TOMATO GROWING IN SUMMER

Believing that there should be money in raising tomatoes in the summer for sale from the middle of October to Christmas, Mr. Williams last year experimented with such a crop on a small scale. His first tomatoes sold from fifteen to twenty cents a pound. The results were so satisfactory, he planted a much larger crop of tomatoes last summer for sale early this winter. The objection to growing tomatoes in the greenhouse in the spring is the fact that high prices are realized for only the first tomatoes. The remainder of the crop competes with early cauliflower and other vegetables, and has to be sold at low prices. During the late fall and early winter months, there are but few vegetables on the market, and the price paid for tomatoes sold at that time, instead of dropping, keeps increasing as the season advances. The main winter crop grown by Mr. Williams is lettuce, and the out-door crops, asparagus, strawberries, tomatoes, early cabbage, late cauliflower, winter celery and melons.

IMPORTANT WORK TO BE DONE

As a member of the Ontario Vegetable Growers' Association, Mr. Williams is convinced that the association has a great future and important work to perform. "The Government," said Mr. Williams, "does not realize the extent of the vegetable industry. Vegetables are grown everywhere, not only around small villages, but on the farm. Fruit, on the other hand is not grown to anything like the same extent. The main fruit sections of Canada are limited. Fruit is a luxury, vegetables are a necessity. It is the duty of the Ontario Vegetable Growers' Association to awaken the people from the belief that vegetable growers do not amount to anything, and to educate the country regarding the importance and possibilities of the industry. The trade of the average mechanic can be learned by putting in two or three years at the most. Such is not the case in the growing of vegetables. I have been in the business for forty years and am learning yet, and this is the case with every wideawake vegetable grower."

OUR QUESTION AND ANSWER DEPARTMENT

Readers of The Horticulturist are Invited to Submit Questions on any Phase of Horticultural Work

Marketing Citrons

Where can I find a market for citrons? I have a large quantity; would preserve them if necessary.—A.C.R., Goodwood, Ont.

There is a demand for citrons, but it is not large. Any reliable commission man in Toronto or Montreal could sell them. When they have to be shipped any considerable distance, however, it would scarcely pay, as they are so heavy. The freight charges consume a large part of the price. Recently citrons were selling in Toronto at from forty cents to eighty cents a dozen. There is no general demand for home-preserved citrons. It is probable, however, that such could be sold to special customers or to hotels.

When Plants Should Bloom

When should plants of *Datura cornucopia* flower? A specimen in my garden this year grew well, but the leaves curled and flowers did not appear. Would like to know also when a prickly pear cactus should bloom.—Mrs. J. D. M., Lardo, B.C.

I am sorry that your first letter did not come to hand. *Datura cornucopia* is an annual and should bloom the first year from seed, but the plants must be started early. The fact of the leaves curling up, as referred to, would seem to indicate the presence of insects or disease. The prickly pear cactus should bloom in three years from cuttings or joints, if conditions are favorable to its growth. If grown from seed, it would take probably four or five years.

Wants Redress

We bought thirty pounds of Yellow Flat Danvers onion seed indirectly from one of Toronto's leading seed houses this spring. We also bought some Yellow Flat Danvers onion seed from a firm in the United States in 1906. After planting the seed purchased here, we planted what seed we had left over from last year of the American seed. The American seed produced good saleable onions. The seed purchased from the Toronto house, alongside of the American seed to the very row where it was planted, has grown what are called "thick necks" or "scallions"; in fact, it is a question in our mind if they are not Egyptian or Pyramid onions. Now, we planted seven acres of this seed, and it means a loss to us of $2,000. In addition, all these onions had to be gathered off the land. We would like to know if there is not some way of obtaining compensation for this loss, as in our opinion it is entirely the fault of the seed, which variety must have been known by the man that grew it.—S.B., Collingwood, Ont.

The foregoing letter was submitted to a prominent law firm in Toronto, who replied as follows: "Your subscriber's letter is rather indefinite. What do they mean by 'bought.....indirectly'? Only a general answer can be given to the enquiry because of the lack of necessary detail. The right to recover will depend upon the representations made by the vendor of the seed. If the vendor sold to the purchaser seed represented by the vendor to be of a certain kind and quality, intending the purchaser to rely upon such representations, and the purchaser does rely upon the representations and purchases the seed, and, as a matter of fact, it is not of the kind and quality represented (and in the case under consideration the purchaser is unable by an ordinary examination of the seed delivered to him to see that it is not of the kind and quality represented), and the purchaser plants the seed, and, as a direct result of it being of a different kind or quality from what it was represented to be, suffers damage, he can recover that damage from the vendor of the seed."

A Well-Known and Reliable Nursery Concern

SUCCESS in growing fruit trees and ornamental plants depends largely upon the care and attention given the stock in its young days, that is, while in the nursery. To grow good fruit or to produce ideal effects on the home grounds or in parks, good trees, bushes or plants must be available with which to start operations. To purchase these with confidence, the grower, amateur or professional, must feel that he is getting stock that has been grown by a nursery firm that knows how to accomplish desirable results and does it.

Bird's Eye View of the Home Farm, "Helderleigh"

The illustration shows cellars, packing sheds, fruit packing house, jam factory, cold storage plants, and so forth

Many visits to the combined fruit and nursery establishment of E. D. Smith, M.P., Winona, Ont., known as the Helderleigh Nurseries, have convinced an editorial representative of THE CANADIAN HORTICULTURIST that this firm takes the greatest possible care and endeavors to grow only the best and most reliable stock.

Helderleigh Nurseries were established twenty-five years ago. From a small beginning, they have grown and extended from year to year until at present the area of the establishment under cultivation is 800 acres. It comprises seven farms, of which 250 acres are planted with fruit trees. The business is growing rapidly. It is probable that within a few years' time this establishment will be the largest of its kind in Canada. The secret of its success is the good faith and skill with which everything is conducted.

STOCK TRUE TO NAME

Special attention is given to the character of the buds and scions used for propagating purposes. As Mr. Smith grows fruit on an extensive scale, he is able to use scions and buds from bearing trees. As a fruit grower he not only is in a position to be sure of the scions used for propagating, but also he is in a better position than most nurserymen to give advice in the matter of selecting varieties and planting. Mr. Smith has been in the business for twenty-five years and is able to judge the value of the different varieties of fruit trees that he grows in his nurseries.

NEW VARIETIES WELL TESTED

It is well known that many new varieties of fruits prove of little or no value. Before new sorts are disseminated from the Helderleigh Nurseries they are tested thoroughly. As Mr. Smith is always looking for new things that will be of value to fruit growers, he does not hesitate to try all new varieties that are promising. After testing them and comparing them with the best standard varieties, those that are worth while are offered for sale; the others are discarded.

PLANT CANADIAN GROWN STOCK

It has been mentioned many times in the columns of THE CANADIAN HORTICULTURIST that Canadians should grow Canadian grown stock. This is a point that is emphasized by Mr. Smith, who said Canadians should buy stock that has been produced in our climate, not only because such will do better than stock that is imported, but because they can come back on the nurserymen if the stock purchased does not turn out as expected. There is no redress for Canadians who buy from United States firms. Canadians should consider the patriotic aspect as well. By purchasing from Canadian firms, the buyer aids and increases the employment of Canadian labor. On an average, 100 men are employed on Mr. Smith's farm, and in the spring the number is increased to about 125.

For the growing of nursery stock, only the choicest soil is selected. Two crops of apple trees are never grown on the same soil and location. All nursery lands on Mr. Smith's farm are manured heavily to produce rapid, vigorous growth. The young stock is cultivated at least once a week all spring and summer till August. Cultivation is then stopped so that the wood may have a chance to harden. Mr. Smith claims that the location of his nurseries is superior to most other places. He has a longer season and, as a consequence, his stock makes a better growth in the

same time and the wood becomes more matured and harder than that of stock grown in less favored localities.

ADVANTAGES OF EARLY PLANTING

The advantages of early planting are recognized by all up-to-date planters. The growth of a tree planted in April

A Corner of a Block of 50,000 Spruce Trees

will be worth three times that of a tree planted in May Not only are there less losses but the growth is better and greater. In the future of a tree, it is important that it makes a vigorous growth the first year. A tree that is stunted during the first year never recovers. It is believed that a tree planted dormant and early will grow more in two years than one planted late and partially in leaf will in three.

By the use of tree cellars on the Helderleigh Nurseries, they are able to ship stock two weeks earlier in spring than where no cellars are used. Although such buildings on nurseries are called "cellars," they, in reality, are not cellars but stone buildings without floors. In the fall the trees are dug and placed in immense cellars. They are not simply stored there as is done by some nurserymen, who have cellars, but they are heeled in. The roots are buried deeply in the ground, the trees standing upright. There is no piling up like cordwood with roots exposed in winter. The roots of trees in Mr. Smith's cellars, being in contact with mother earth all winter, are protected and they come out in the spring as fresh as when dug in fall. These cellars are well constructed A system of waterworks has been installed by which the soil is saturated when the stock first is heeled in. Water is used again in spring if needed. There is a great advantage in securing trees sound and unfrosted two weeks earlier than can be done from places where the trees have to be dug in spring. All the packing is done under cover and behind closed doors, where no warm winds can reach the stock and injure it.

All kinds of fruit trees and bushes, as well as ornamentals, are grown. A specialty is being made of crossbred apples, suitable for planting in Manitoba and the Northwest Provinces, and in New Ontario. Mr. Smith is propagating and growing the valuable hybrids produced by Dr. Wm. Saunders, of the Central Experimental Farm, Ottawa, by crossing various hardy varieties of apples and crabs on the Siberian crab, *Pyrus baccata*. According to reports issued by the Central Experimental Farm, varieties of this type have been planted in the most exposed situations on the Northwest experimental farms and have shown no indications of tenderness. They are hardy and should be welcomed by all persons who wish to grow apples and cannot grow the standard varieties. Mr. Smith's stock is particularly fine.

WELL-GROWN GRAPE VINES

On these nurseries, there will be 500,000 grape vines for sale next spring. They comprise all the leading varieties and are well grown. Particular attention was paid to having them true to name. During the past summer, all of them were gone over by an expert and tested for "rogues." They are true to variety. By purchasing from this stock growers may expect the best of results.

VARIETIES RECOMMENDED

As already mentioned, Mr. Smith is in a position to give expert advice on the proper varieties to plant. Being the proprietor of probably the largest wholesale fruit business in Canada, he knows from experience the varieties that mean money. Fruit growers in all parts of Canada would do well to consult Mr. Smith in this respect. He is always willing to give the benefit of his experience to others. In conversation with the representative of THE CANADIAN HORTICULTURIST, Mr. Smith stated that he is looking for a great demand for Spys, and is preparing for it. He will have for sale a heavy stock. At present, however, growers are asking for Stark, Ben Davis and Baldwin, and on these nurseries they can be supplied with all they require.

In plums, Mr. Smith recommends Monarch, Reine Claude, Grand Duke and Black Diamond. Among the leading pears that he would suggest for planting are Bartlett, Doyenne, Bussock, Anjou and Bosc, the two latter on Kieffer stock. It is claimed that by growing these two varieties on Kieffer stock, a bearing head is secured much sooner than when grown on their own roots. The trees, also, are said to be freer from blight.

Part of a Block of 300,000 Three-year-old Apple Trees

When speaking of peaches, Mr. Smith said: "There was an enormous crop of Elbertas this year, and it brought the growers large sums. An acre of full-

grown trees brought the owner between $1,000 and $2,000. As a consequence, there will be a great demand for Elbertas next year, and we are in a position to meet the demand."

In this Block there are 100,000 Seedling Peach Trees

THE HERBERT RASPBERRY

In small fruits, a large acreage of a general assortment was seen. All the leading varieties of raspberries, blackberries, currants and gooseberries are grown in innumerable quantities. Particular attention has been paid to the propagation of the Herbert raspberry, which is rapidly coming into popularity. The results of experiments at Guelph and at Ottawa show it to be the most productive of all red raspberries. Having been originated at Ottawa, it is extremely hardy. It is of particular value, therefore, to planters in the colder sections of our country. The fruit is of excellent quality. Raspberry growers would do well to give it a trial. It will make good. The stock of plants of this variety growing on the Helderleigh Nurseries appeared in the prime of condition.

CAROLINA POPLARS

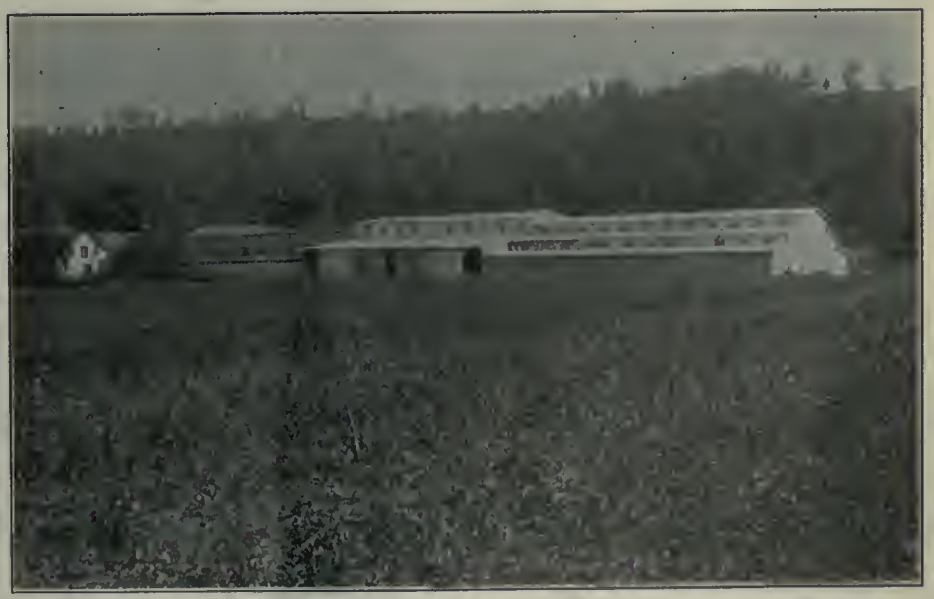
Not only are fruit trees grown extensively, but ornamental and shade trees as well. A particularly fine block of Carolina poplars was noticed. It contains 40,000 young trees. This tree is becoming very popular. Last year, Mr. Smith sold 20,000 within a radius of twenty miles of the nurseries. It is an extremely vigorous grower. It is upright in habit and handsome. Its use for street planting is unsurpassed. For windbreaks, it is especially valuable. Its chief value, however, is as a fence post. The trees are planted in a row where the fence is required to be erected. When the trees are eighteen or twenty feet high, which size is attained after being planted four or five years, a picket of wood to the desired height of the fence is nailed on to the trees. The wires are strung thereon and secured by staples. Carolina poplar fences are the strongest, cheapest and most beautiful tree fence that can be erected.

There is an outstanding feature of country or rural improvement that is not emphasized or recognized as it should be, and that is the advertisement that it affords the community. Rural improvement certainly is a striking advertisement of the progress of a country's refinement, and of the height of its civilization. The planting of trees along the roadside and around the farm homestead is something that should not be neglected. Many varieties and classes of trees for the purpose are grown at the Helderleigh Nurseries, among them Norway spruce, of which some 100,000 will be ready for sale next spring.

There is a good line of ornamentals on the nurseries. In roses, Mr. Smith thinks a great deal of Dorothy Perkins. It is a rapid grower, handsome, and a good mate for Crimson Rambler, the old reliable, of which they have a good stock. Strong field-grown roses of all varieties, both budded and on their own roots, are grown. There is a large stock also of self-clinging Virginia creeper, *Ampelopsis Hirsuta.* Like the Boston ivy, this is a hardy vine and clings to any smooth surface. It is just the thing for northern districts where Boston ivy is too tender.

STAFF OF AGENTS

On the staff of employees are 300 agents. Mr. Smith makes unusual efforts to secure reliable men. Applicants are required to furnish as references the names of four responsible men in active business. Of the large number of men who apply for work as representatives of this nursery, fully seventy-five per cent. are refused, as they do not meet the strict requirements demanded. These nurseries have rightly gained a wide reputation for reliability. This is evidenced not only by thousands of testimonials from individual growers, but also from the fact that for a number of years E. D. Smith has been supplying the Government experiment stations in New Brunswick, Nova Scotia and Ontario. This would indicate that every confidence can be placed in the firm.



The Packing Shed and Cellars for Wintering Stock

Capacity—250,000 trees and 300,000 vines. In the foreground is a solid block of Ben Davis apple trees

The Canadian Horticulturist

Published by The Horticultural Publishing Company, Limited

The Only Horticultural Magazine in the Dominion

Official Organ of British Columbia, Ontario, Quebec and Prince Edward Island Fruit Growers' Associations and of the Ontario Vegetable Growers' Association

H. Bronson Cowan, Managing Editor and Business Manager
A. B. Cutting, B.S.A., Horticultural Editor
W. G. Rook, Advertising Manager
Garrett Wall, Circulation Manager

1. The Canadian Horticulturist is published on the 25th day of the month preceding date of issue.

2. Subscription Price in Canada and Great Britain 50 cents a year, three years $1.20. For United States and local subscriptions in Toronto, 25c. extra a year is charged for postage. Foreign subscriptions, $1.00 a year, including postage.

3. Remittances should be made by Post Office or Money Express Order, or Registered Letter. Postage Stamps accepted for amounts less than $1.00.

4. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

5. Advertising Rates quoted on application. Copy received up to the 18th. Responsible representatives wanted in towns and cities.

6. Articles and Illustrations for publication will be thankfully received by the editor.

Circulation Statement

Since the subscription price of The Canadian Horticulturist was reduced from $1.00 to 50 cents a year, the circulation has grown rapidly. The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with July, 1907. The figures given are exclusive of sample and spoiled copies and of papers sent to advertisers. Some months, including the sample copies, from 8,000 to 10,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruit, flowers or vegetables.

August,	1906	4,220
September	1906	4,300
October,	1906	4,330
November	1906	4,775
December	1906	4,814
January	1907	4,947
February	1907	5,520
March	1907	6,380
April	1907	6,460
May	1907	6,620
June	1907	6,780
July	1907	6,920
Total for the year		66,066
Average each issue		5,505
August,	1907	6,880
September,	1907	7,078
October,	1907	7,210

Sworn detailed statements will be mailed upon application.

Our Protective Policy

We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason to believe that any of our advertisers are unreliable, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant we will expose them through the columns of the paper. Thus, we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefits of this Protective Policy is that you include in all your letters to advertisers the words "I saw your ad. in The Canadian Horticulturist." Complaints should be sent to us as soon as possible after reason for dissatisfaction has been found.

Communications should be addressed:

THE CANADIAN HORTICULTURIST,
506-7-8 Manning Chambers,
TORONTO, CANADA

EDITORIAL

WANT A FRUIT MARKS ACT

The value of the Canadian Fruit Marks Act is becoming recognized more and more as its benefits become known. At the recent meeting of the American Pomological Society at the Jamestown Exposition, Mr. Alex. McNeill, Chief of the Fruit Division, delivered the excellent address that is published as the leading article in this issue. The information given impressed the members so favorably that the following resolution was adopted by the society:

Resolved, That a committee of five be appointed by the chair to confer with the United States Department of Agriculture with the object of securing the enactment of national regulations intended to secure for us the substantial benefits conferred upon the Canadians by their "Fruit Marks Act."

They were also requested to secure the co-operation of state horticultural societies and trade organizations.

It would seem that, while each state in the Union can enact a bill of this nature, the national government lacks that power. This illustrates one of the defects in the constitution of the United States. Each state legislates for itself on questions of national importance. The result is that such legislation does not effect its purpose. The people of the United States are beginning to discover the defects of their national constitution in this as in other particulars. They would like to follow up-to-date Canada, but constitutionally they cannot.

PILFERING IN FRUIT ORCHARDS

Much annoyance and loss are occasioned to fruit growers by the petty pilfering to which they are subjected. In the aggregate, the loss amounts to a considerable sum. Where travel is not large and where orchards are enclosed with fences, the loss may not be so great, but in the Niagara district and some other fruit sections where few fences are maintained along the highways, it is assuming serious proportions, especially in seasons like the one this year, when fruit is scarce and high priced.

Some people seem to think that they are justified in helping themselves to fruit that is growing close to the highway. They do not take the trouble to consult the owners so that they may find out whether they are welcome or not. The generosity of Canadian farmers is well known, but there is a limit to their patience. Owners of orchards or vineyards seldom refuse a request for a few peaches, grapes or other fruit, but the pilferers do not think it necessary to ask. They prefer to pilfer. Stolen fruit, they think, is the sweetest. Often the presence of the owner does not deter them. Should a protest be made, the trespasser offers some slight compensation, and considers himself injured.

Probably the most aggressive foragers are boys. When passing along the highway, they cut a wide swath which includes in their wanderings a few trees, bushes or vines on either side. The attack is made alike upon immature or ripe fruit. They are not satisfied with consuming what they take, but must use countless specimens as convenient missiles to hurl at anything that may attact their aim. A favorite field of endeavor for boys is a strawberry patch. As they care not where they place their feet, they destroy much more fruit than they eat or carry away. Scores of other illustrations and instances could be cited.

In cities, towns and villages, people do not think of helping themselves to a single specimen of fruit when they are passing a grocery store or a fruit shop. Much less do they plan to carry away the property of others by handfuls and basketfuls. Why then should the fruit grower be placed at the mercy of every passerby and called on daily to furnish a feast to scores of persons whom he does not know and in whom he can have nothing more than the most general interest? The remedy for this practice is readily available. There is legislation in this country that meets the situation. It is easily applied. It is interesting to note in this connection that twenty men, women and children were up in the police court at Belleville recently charged with stealing fruit, they having stripped two orchards in the vicinity. They were given a severe reprimand and fined amounts ranging from $1.50 upwards and costs. A few arrests like this would soon check the evil. If followed up, it would not be long before people came to have a wholesome respect for highway boundaries.

TAKE A FEW SHARES

A few months ago we announced in these columns that The Horticultural Publishing Company, Limited, which owns The Canadian Horticulturist and *The Canadian Florist* had decided to increase its subscribed capital from $10,000 to $20,000, by issuing $10,000 worth of new stock. A large part of this new stock was bought by our shareholders. Every director of the company increased his holdings. Our readers were given an opportunity to subscribe for the remainder of the stock. A considerable number did so, with the result that the $10,000 in stock was all subscribed by people interested in the growing of fruit, flowers or vegetables. This was what we desired. Recently, however, a couple of persons who took some of this stock have found it necessary, for private reasons, to ask to be relieved of a portion of their allotments. Their requests have been granted. Thus we are able to offer our readers one more opportunity to secure an interest in this company, and a chance to become a part owner of The Canadian Horticulturist.

The past year has been the most successful in the history of the company. This issue will be mailed to almost 7,500 paid subscribers. A glance at the sworn circulation statement, published on this page, will show the phenomenal increase that has taken place during the past year in the circulation of The Canadian Horticulturist. The receipts from advertisements have increased to an almost equally gratifying extent. The September and October issues and this issue of The Canadian Horticulturist have each carried over twenty-five per cent. more advertising than any previous issue, although the spring months are the best for advertising. Each of the issues mentioned have contained more advertising than was carried in all twelve issues of the magazine in 1903. In other words, we are carrying over twelve times as much advertising now as we did only four years ago. On the first of this month our advertising rates, owing to the great increase in our circulation, were advanced twenty per cent. Soon, this publication should prove one of the most profitable of the kind on the continent.

All the stock of the company is held by people who are interested in horticulture. This is as it should be. We hope that the small amount of stock that still remains to be disposed of will be subscribed by our readers. This is the last chance they will have. The shares are fifty dollars each, and only twenty dollars is being called on each share. Those of our readers who are interested are invited to write us for a prospectus that gives full particulars.

In the leading article of this issue, Mr. Alex. McNeill's paper on the Fruit Marks Act, reference is made to the fact that our cooperative fruit associations have not yet been fined for violating the act. This is something for the associations to be proud of, yet nothing more than would be expected. One of the chief reasons for their existence is the fact that

growers individually found it difficult to maintain a grade uniformly in accordance with the demands of the act. By organizing and packing collectively, uniformity is comparatively an easy matter. Furthermore, the leading cooperative associations demand that the orchards of its members be sprayed a number of times each season—fruit from unsprayed orchards being refused. This regulation has done much to decrease the percentage of defective specimens. Fruit growers in parts of Canada where associations have not yet been formed, should recognize the value of cooperation and organize at once Cooperation means increased profits.

The fruit growing industry of British Columbia is worth more to the province, or will be in the future, than all other industries combined. In view of this fact, it is surprising that the British Columbia Department of Agriculture has few greater facilities for original investigation and for the dissemination of knowledge on fruit growing and kindred subjects than it had when the industry was only in its infancy. The department has done excellent work in some lines, but not enough. A fuller inspection of the orchards of the province should be made and a more thorough inspection of fruit as it goes upon the market. The department as well as the fruit growers would benefit by a better equipment in the way of a library and of collections of biological specimens. By such means, the questions and difficulties of the fruit growers could be answered and treated promptly and with satisfaction.

This season, some fruit growers in Ontario asked the Fruit Division at Ottawa for a reduction in the standards of apples. The request was brought about by the drought of the past season, which threatened to result in smaller-sized apples than usually is looked for. The Fruit Division decided that the request could not be granted. As British Columbia and Nova Scotia fruit is quite up to the average, it was felt that if an exception were once made, it would lead to an annual demand from one province to another. The Government inspectors were instructed to see that the law is carried out. If the good reputation for packing that Canada rapidly is acquiring is to be maintained, the requirements of the Fruits Marks Act must be observed to the letter. The action of the Fruit Division in this matter is to be commended.

In another column of this issue an article entitled "Have a Grievance," points out the lack of proper facilities for transportation on the Grand Trunk Railway from Niagara to Toronto. For some years, it has been disgraceful and particularly this season It is suggested that a conference of fruit growers between Clarkson and Niagara Falls be held in the near future to discuss the matter. No time would be more opportune for the purpose than during the days of the Ontario Horticultural Exhibition, which will be held in Toronto on November 12-16. Advantage may be taken of the low rates offered by the railways. Hundreds of fruit growers will be in Toronto attending the exhibition and the convention of the Ontario Fruit Growers' Association. It would seem, therefore, that a mass meeting of all persons interested in the transportation question could easily be arranged.

At a recent meeting of the Toronto Horticultural Society, an excellent address was delivered by Mr. R. B. Whyte, of Ottawa, during which he suggested ways and means by which horticultural societies may increase the number and interest of their members. One of the features referred to was the value of a question box at meetings. This affords the members an opportunity for gaining information in respect to any difficulties that may confront them. Another factor in building up a society, and a most important one is the holding of flower shows and exhibitions in connection with the meetings. This can be done, however, only when the meetings of the society are held during the summer months, as is the practice at Ottawa. Societies that are not progressing as rapidly as the members would wish should consider these two points if already they are not features in their work.

That the spirit of patriotism should be fostered in the schools of Canada is recognized by all true Canadians. It is interesting to note, therefore, the plan formulated by the Ontario Department of Education, to supply rural schools with ensigns—Union Jacks, with the coat-of-arms of the Dominion of Canada. An appropriation of $5,000 was voted by the legislature as a beginning. Each rural school will receive a flag, which must be displayed in the class-room at the discretion of the trustees. The ensigns are to be flown on high days and holidays from the flagstaffs. No provision has been made for presenting them to the urban schools. That step may be taken later. The step taken will do much to infuse in children a keener love for their native land, and for the greatest empire on the face of the earth.

Recently THE CANADIAN HORTICULTURIST received a letter from a gentleman in the United States asking for information regarding fruit farms that are for sale in Southern Ontario. This is not an unusual occurrence. Frequently we receive similar letters from England and elsewhere. This would indicate the advisability of owners of fruit land in the Niagara district and other fruit localities advertising in our columns. No better medium can be found for disposing of fruit farms than THE CANADIAN HORTICULTURIST. The circulation of this publication is not confined to Canada. It includes readers in most countries of the world.

In our last issue we referred to the action taken by the Board of Control for Toronto in the appointment of a local fruit inspector for that city. Ottawa probably will do likewise in the near future. At a meeting of the grocers of that city early in October it was decided to ask the city council to appoint at once a fruit inspector. It was pointed out that in Winnipeg and some other Canadian cities there is an inspector and provision whereby, if the railway companies delay in delivering carloads of fruit to big dealers, they have to foot the bill when the fruit is bad. Other cities should follow this example.

In the October issue, two errors occurred. On page ix, first column, eleventh line, the word "Bonne" should have been "Pomme," and on page x, third column, seventh line, the word "vegetable" was printed for "apple."

Have a Grievance

Editor, THE CANADIAN HORTICULTURIST: A suggestion was made at the last business meeting of the Clarkson Fruit Growers' Association, that the fruit growers and shippers residing between Clarkson and Niagara hold a convention in the near future to discuss matters respecting the conveying of our fruit and vegetables to Toronto market via the Canadian Express Co. Our grievances are decidedly obvious, and have been for years, to any person or persons who have their eyes open. The company is well aware of it. We have lodged complaints repeatedly, but instead of them treating us with consideration, they tuck on more charges, which are out of all reason. It costs us more to ship a hundredweight of fruit from Clarkson (I might say by freight, for that is practically what it is), than it costs us to travel in a first-class coach. I was requested to ask you whether you would publish this suggestion in THE CANADIAN HORTICULTURIST. One of your prominent advertisers was present, and told us we could not do a better thing, as he had found it most profitable to advertise in THE CANADIAN HORTICULTURIST.

One matter that was talked of was to ask for a uniform charge of three cents for the 11-quart basket. We hope that all the growers and shippers will show a united front and take action. "In unity there is strength." Clarkson growers have been scrapping alone long enough The company laughs us down every time. The commission men are with us to assist all they can. I might say also that some of our men are considering the feasibility of forming a syndicate re the purchasing of a motor car for the carrying of freight This convention should be brought together as soon as possible. Any correspondence concerning this matter should be addressed to R. Shook, Secretary Clarkson Fruit Growers' Association, Clarkson, Ont.—W. G. Horne.

Lindsay Aster Show

What has proven a very successful and gratifying innovation was undertaken last spring by the Lindsay Horticultural Society. With the cooperation of the public school teachers of the town, packages of aster seed were distributed to all school children who would undertake to plant the seed and care for the plants.

To test the success of the scheme, and also to give to the children increased interest in the growing of flowers an Aster Show was held in the Town Hall on Sept. 26. First, second and third prizes were given for competition by the children of each of the 10 schools of the town. Also three special prizes were given for general competition. The competition was limited to asters grown from seed distributed by the Horticultural Society. Ninety-two entries were made and the display arranged in bouquets and placed on tables was most pleasing and beautiful. The show was arranged for the children's benefit, and they took full advantage of it. During the afternoon and evening large crowds of excited and happy children filled the hall, and almost every child in Lindsay came to see the show of asters, grown by their school mates. In the evening large numbers of older boys and girls, and parents were present. Seldom has any show created more interest or drawn so large a crowd.

The success of the show was gratifying to the members of the Horticultural Society, and to Secretary Frampton and President Chambers. Already requests for more seeds are coming in, and the society feels that not only will more asters be grown next year, but also that the interest created will be far-reaching, and that the children who this year learned how to grow asters will next year grow many other flowers.—F.H.Reed.

Two snapshots of asters were sent to THE CANADIAN HORTICULTURIST. Will the reader who favored us kindly send his name and address?

I read THE CANADIAN HORTICULTURIST from beginning to end and some of it two or three times. It is the best publication of its kind that I ever saw and I have subscribed for all the leading Horticultural papers on the continent.—J. C. Black, Truro, N.S.

Kettle Valley, B.C., through Mr. Martin Burrell, took 29 out of 37 prizes at the Nelson fair, and also won the district prize. This shows that the Kettle Valley Irrigated Fruit Lands Company, Limited, of Midway, B.C., of which Mr. W. O. Wright is manager, is making no mistake in launching its fruit lands enterprise that was advertised in recent issues of this paper.

The Apple Situation and Crop Reports

EXPORT apples are moving freely. It is probable that the movement will be even more brisk until the close of navigation at Canadian ports. Returns from early shipments on consignment have been disappointing, the shippers netting, in the majority of cases, less than $2 a barrel, and in some instances, as low as $1.35. This would seem surprising in this season of high prices if the cause were not looked into. The chief reason is the fact that the fruit had been picked immature and as a result a large part of it arrived in bad condition.

Growers generally are securing good prices for apples f.o.b. Various instances of excellent sales are known to THE CANADIAN HORTICULTURIST. A cooperative association in western Ontario sold some thousands of barrels at the high price of $3.50 for No. 1, and $3 for No. 2, the fruit to be well selected. Many sales have been made at $3 for No. 1's and No. 2's, and many at $3 for No. 1 and $2.50 for No. 2. In one locality, a sale of 5,000 boxes has been made at $1.25 for No. 1's and No. 2's.

American buyers are still on the ground and are ready to pay high prices for good stock. It is important that individual growers and cooperative associations pay particular attention to the grading of their fruit this year. Nothing questionable should be allowed to pass.

LAMBTON COUNTY

Arkona.—Winter apples have been bought mostly by the orchard at from $1 to $1.25 a barrel, the grower to do the picking. Some orchards were damaged by hail in August.—J. Seymour.

HALTON COUNTY

Oakville.—Buyers have paid as high as $2.25 in the orchard for apples.—W. H. MacNeil.

MIDDLESEX COUNTY

Ivan.—Buyers of apples are offering $1.25 to $1.75 in the orchard, picked.—E. T. Caverhill.

BRUCE COUNTY

Walkerton.—Since early fall rains, apples have almost doubled in size. Buyers are offering $1.50 for No. 1's, picked, and $1.25 for No. 2's.—A. E. Sherrington.

WENTWORTH COUNTY

Stony Creek.—The fruit is now nearly all harvested. Grapes have been an abundant crop; $30 a ton was paid and 16 to 20 cents a small basket. The peach crop was rather light in this locality; prices ranged from 80 cents to $1 a basket. Plums and pears were very scarce with prices at from 50 to 70 cents a basket.—J. B. Smith.

HALTON COUNTY

Burlington.—Fruits on hand at this date are winter apples and pears, with a few grapes. Winter apples have been bought readily at $1.75 to $2 on the trees. Evaporating apples brought 30 cents and canners 70 cents per cwt. The pear crop is medium and of good quality. A large part of the grape crop is cut; late varieties are not ripening fast.—W. F. W. Fisher.

LINCOLN COUNTY

Jordan Harbor.—Fruit, with the exception of grapes and apples, is nearly all gathered. Grapes have been an exceptionally heavy crop and of excellent quality—the best for several years. Prices ranged from 15 to 20 cents a basket. Apples are only a fair crop. Winters are selling at from $1.50 to $2 a barrel. Packing has not yet become general. Tomatoes are about done. Frosts have been prevalent.—Wm. Fretz.

PEEL COUNTY

Clarkson.—With the exception of apples and grapes, fruit of all kinds has been gathered. Apples are turning out fully as well as was anticipated and are exceptionally free from scab and spot. The codling moth played havoc with Greenings. Other varieties are fairly free from scab. All varieties are well colored and will pack a good sample. Prices range from $1.50 to $2.25 a barrel. Grapes are a good crop. Nearly all have been gathered, but some of the late varieties have been damaged by frost.—W. G. Horne.

Small Fruit Plants

Through an oversight we inadvertently omitted from our article in the October number, on the nurseries of Stone & Wellington, the fact that this concern are specialists in the growing of small fruit plants. They make a specialty of supplying strong, two-year transplanted plants, in place of the ordinary sucker or one-year tip plants usually supplied and dug from the rows of bearing canes, which not one nursery firm in a hundred does.

Their reputation as specialists in the growing of berry plants enables them to sell annually from 150,000 to 200,000 plants, and they inform us that they are finding an increasing demand yearly. In one block of small fruits, they have at the present time over 300,000 healthy, vigorous-growing plants of raspberries, currants, gooseberries, blackberries, and so forth, amongst which is included the *famous new Herbert Raspberry*, of which so much has been said lately, and is so highly recommended by the Government experiment stations, having proved itself the finest and hardiest red raspberry ever introduced for Canadian culture, and which they are already able to offer in these specially grown, two-year transplanted plants.

Since our last number they have acquired 50 acres of new land, on which they intend growing nursery stock, which now increases their total acreage to over 850 acres. The firm of Stone & Wellington use the greatest judgment in selecting new lands for the growth of nursery stock, never acquiring lands which have previously grown nursery stock or orchards, and in this way have been able to maintain their high reputation of furnishing stock that is clean and healthy. Particular attention is paid also to selecting lands well drained and well protected, which insures their trees being free of black heart.

Fruit Growers' Program

The forty-eighth annual meeting of the Ontario Fruit Growers' Association will be held in Toronto on Nov. 13 and 14. The following is a preliminary program. Some changes may be made:

WEDNESDAY MORNING, NOV. 13

9.30 a.m., President's annual address, Harold Jones, Maitland; 10.15, Reading of correspondence and appointing of committees; 10.30, Reports of standing committees. New Fruits: W. T. Macoun, C.E.F., Ottawa, and H. L. Hutt, O.A.C., Guelph.

WEDNESDAY AFTERNOON

2.00 p.m., "Influence of Stock and Scion upon Varieties," Prof. H. A. Surface, Harrisburg, Pa.; discussion led by Prof. W. T. Macoun, Ottawa; 3.30, "Market Conditions in Great Britain," J. A. Ruddick, Dairy Cold Storage Commissioner, Ottawa; 4.30, "The Ontario Horticultural Farm: Progress of the Year," H. S. Peart, Supt., Jordan Harbor. Suggestions for Its Future: C. L. Stephens, Orillia; J. L. Hilborn, Leamington; Murray Pettit, Winona; F. S. Wallbridge, Belleville—Five-minute addresses.

WEDNESDAY EVENING

8.00 p.m., "Five Common Insect Enemies of the Fruit Grower" (illustrated by limelight views), Prof. S. B. McCready, O.A.C., Guelph. This address will deal with oyster-shell bark louse, San Jose scale, codling moth, canker worm and flea beetle; 8.45, "The Outlook for the Fruit Grower," E. D. Smith, M.P., Winona; discussion led by Prof H. L Hutt, Ontario Agricultural College, Guelph.

THURSDAY MORNING, NOV. 14

9.00 a.m., "The Place of the Fall Apple in Future Planting," Alex. McNeill, Chief, Fruit Division, Ottawa; discussion led by Jas. E. Johnson, Simcoe; 10.00, election of directors; 10.30, "Nursery Control and Legislation in Other Countries," E. C. Morris, Brown's Nurseries (from the nurseryman's standpoint), and G. A. Robertson, St. Catharines (from the fruit growers' standpoint)

THURSDAY AFTERNOON

2 p.m., "Express Rates in Relation to the Fruit Industry," speakers yet to be secured; 3 p.m., "Business systems for co-operative Associations."—From the practical side: W. D. A. Ross, Chatham; D. Johnson, Forest, and W. H. Dempsey, Trenton; from the expert's side, by an expert; 4.00 p.m., "The Necessity for an Improved Fruit Market and Terminal Facilities in Toronto."

New Canning Factories

Niagara Falls has built one of the finest canning factories in the province. The company will be known as the Niagara Falls Canning Co., with a capital of $60,000. The plant is located on the Michigan Central Railway. The buildings are good ones. One of them, the storage building and warehouse, is 50 x 100 feet and two stories high. Another, the process building, is 50 x 150 feet and two stories high. The mechanical cold storage plant has a capacity of 60 carloads of fruit.

One of the most important strides made by the Canadian fruit and vegetable canning and preserving industry is the establishment at Niagara Falls of the Sanitary Canning Co., Ltd., the Canadian branch of the Sanitary Canning Co., Ltd., of New York. This company manufactures the latest things in cans. It rents to canners machines to seal the cans automatically, doing away with spirits, acids, solder and cappers. They also make the most up-to-date can on the market, an enamel can for fruits and vegetables with granite enamel inside. This prevents acid in fruits from rusting the cans and removes all danger of ptomaine poisoning. Fruit can be opened from these cans in better flavor and condition than from glass cans or jars, with no risk of breakage. The mouth of the can being the same size as the can itself, fruit can be packed by hand in perfect condition, which the small mouth on ordinary cans prevents. The fact that the cans are much cheaper than the present cans in use, and machines for capping the same are rented to companies at a very low figure, will greatly stimulate the canning industry and cause new factories to be erected. The company has several large buildings now in course of construction at Niagara Falls, where Niagara power will be used to turn out the cans. The company will start operations at once for this season's trade.—T.R.S.

A Marked Difference

The drought of the past season brought out the relative merits of sod and clean culture. It is quite a common remark with crop correspondents reporting to the Fruit Division, Ottawa, that the fruit upon the well-cultivated orchards is much better than the fruit upon orchards in sod.

One of the Dominion fruit inspectors, who was asked to procure some extra fine samples, reports that he had difficulty in finding fruit of the very high class required anywhere, but said it was useless to look for this high-class fruit in any but cultivated orchards. No doubt had the season been wet there would not have been this marked distinction between cultivated and sod orchards.—A. McNeill, Chief, Fruit Division.

NOTES FROM THE PROVINCES

By our Regular Correspondents and Others

British Columbia

By a Staff Representative

The carload of grapes shipped from the St. Catharines district to Oscar Brown Co., of Vancouver, arrived on Oct. 14, in excellent condition. The consignees report everything satisfactory. They sold almost the entire car within three days of its arrival. The retailers have the fruit prominently displayed and marked, "Ontario Grapes, Special, at 60 cents and 65 cents a Basket."

California grapes retail for 15 cents a pound, or two pounds for 25 cents. A comparison of the retail prices will show that the Ontario grapes are selling for less than the California fruit. There is a desire on the part of the wholesale fruit men in Vancouver to import larger quantities of grapes next season. The splendid condition in which the fruit arrived this season would indicate that it should be a paying venture to ship Ontario grapes to British Columbia. The representative of THE CANADIAN HORTICULTURIST, who is visiting British Columbia, was asked to obtain a list of growers who would be willing to ship their grapes to the coast next year.

The prices being paid for apples in Vancouver this week range from 75 cents to $1.50 a box of standard size. The fruit is of excellent size, color and quality, and retails from five cents each to four cents a pound. The fruit exposed for sale appears to be of a high quality. I have not seen any poor fruit since my arrival, and the flavor of apples I have sampled compares very favorably with apples grown in Ontario.

An Undeveloped District

E. C. Miller, Fort Steele, B.C.

We have lands available for fruit raising of the berry species in the vicinity of Fort Steele that may be equalled but not excelled. Strawberries, raspberries, currants, and gooseberries, where cultivated, have gone to waste for want of transportation, and hands to gather the crops. These fruits are indigenous to the country—and can be produced to great perfection.

As soon as this overlooked district, comprising the choicest portion of British Columbia, is opened up by the Kootenay Central Railway, the Fort Steele district may be counted upon to provide fruit and vegetables to any extent. The prospect for apple cultivation, plums and cherries, promises good. There are not many fruit-bearing trees at present, but these show excellent crops of apples of hardy varieties, and of splendid quality. The young stock, planted during past two or three years, are mostly thriving, with little care or knowledge of proper cultivation being given.

Quebec

At the 15th annual summer meeting of the Pomological and Fruit Growing Society of the Province of Quebec, many valuable papers were read. Mr. R. Brodie, of Westmount, gave an interesting paper on "Retrospect and Prospect of Fruit Growing in Quebec." This paper was published in THE CANADIAN HORTICULTURIST for October. Mr. Auguste Dupuis, of Village des Aulnaies, delivered an excellent address on "Orchards in Eastern Quebec and the Sale of Fruits." Mr. Luc Dupuis, government lecturer on agriculture, addressed the meeting on two subjects of interest to fruit growers. Mr. G. Reynaud, of La Trappe, read a paper on the three most common questions asked him in connection with fruit culture. Mr. V. R. Gardner, of the Macdonald College, discussed the best means of controlling plum enemies. A portion of this address appears in this issue of THE CANADIAN HORTICULTURIST

An exhibition was held in connection with the convention. The fruit, especially the plums, brought forth expressions of praise from the judges and the spectators. On the concluding day of the meeting, the delegates drove to the home of the president, Mr. Auguste Dupuis, where some 30 varieties of plums were discussed and tested. After a luncheon tendered to the party by the worthy president, one of the most instructive and enjoyable meetings of the society was brought to a close.

Montreal

St. Lawrence apples are still going forward at this date (Oct. 19) on London ships. This tells a story to the fruit man—that the season is a very late one. Even to-day this apple is in sound, hard condition for this variety. This has been a remarkable season for coolness. We inspectors know it as we are testing the temperature of apples and sheds many times each day. We have found very few dangerous temperatures all through the season. Apples that have gone forward have been more free from rot than for many years. Upwards of 70,000 barrels went forward last week. This is a record for the past four years.

There is only one thing to be regretted. Several cars have been left open to allow the circulation of cool air. In two cases where this was done, we found the ends of the barrels broken in and the apples all gone. It is to be hoped that the shippers get paid for these apples. I think that the evil-disposed persons locate the cars in the day time and rob them at night, as cars of apples lay around for several days before they are unloaded. It is a pity that some of them were not caught and locked up for three months where they would not get a taste of apple sauce.

Another scene that was amusing occurred at one of the docks recently. Six barrels of apples slipped off the wharf and fell into the water. Three of them burst open from the force of striking the water and apples were seen floating all over the water. One sailor jumped in and swam around for the fruit. He got a good many. Another man let a pail down into the water and soon filled it. I also hope that the owners in this case will be paid for their loss by the company to blame.

Some of the new steel sheds are nearly completed. The cars run so close that they can be unloaded quite easily into sheds. This is much better for shippers than the old way of loading on wagons and drawing sometimes over a mile

New Brunswick

J. C. Gilman, Fredericton

The condition of the fruit crop in this province was indicated at the provincial exhibition held at Fredericton, some favored localities having exhibits that indicated a fairly good crop, while others showed a scarcity. Hail storms early in the season left their marks in many orchards.

The red raspberry crop was a good one, although an excess of rain at picking time interfered somewhat with the gathering of the fruit. Tomatoes were late and scarce. Potatoes rotted badly. The year 1907 will not be remembered as a successful one by the average New Brunswick farmer and fruit grower.

Fredericton Exhibition

The recent exhibition at Fredericton, N.B., brought out an exceedingly creditable display in all branches of horticulture, notwithstanding the unfavorable season experienced by the growers. The several classes of exhibits evoked most favorable comments from the judges.

In floriculture, most of the sections in the open classes were for plants and flowers which can only be successfully grown under glass. In the majority of instances there was no competition, as few people in the district, other than the professional florists, have properly equipped houses. Notwithstanding this, Messrs. Bebbington & Son put up a fine display, and one which would have stood a good deal of competition had there been any. Mr. Alward, another local grower, who has not the facilities which Messrs. Bebbington have, had a good showing. In those instances in which they were in competition, the honors were about equally divided. In the class for amateurs only, Miss Edith Gregory had what the judge described as "a most creditable display" of potted and cut flowers, and one which was much admired.

In the fruit division, the bulk of the exhibits were apples, there being only about half a dozen entries in pears and plums. In the 43 sections devoted to apples, practically all were filled and the various exhibits, being nicely staged, made a most tempting display. Unfortunately, a large share of the premiums went to Nova Scotia growers, the season in New Brunswick having been unfavorable for fruit. Of the local men, Messrs. J. C. Gilman, S. B. Hatheway, I. W. Stephenson, Geo. McAlpine, and J. N. Hallett, managed to capture a fair share of the prizes, and some of their exhibits were, in the opinion of the judge, quite equal to, if not better, than the same varieties from Nova Scotia. This clearly showed that certain sections of New Brunswick are well adapted to the growth of apples and that apples should be more largely cultivated.

The proposal to construct a railway along the valley of the St. John River will, if it materializes, open up a section of country than which there is no fairer in the whole Dominion, nor one more suitable for the planting of orchards, rivalling as it does the Annapolis Valley in Nova Scotia. With the fact now clearly established that New Brunswick grown apples can compete successfully in the markets of the Old Country, and elsewhere, with those grown in any other part of the world, it is greatly to be hoped that the opening up of this district will result in a very large increase in the number of orchards, care being taken, however, that only those varieties which have proved hardy and profitable to grow and have good marketable qualities are planted.

In the vegetable classes, the entries were "great" both in number and quality. In many instances, competition was keen. The various exhibits formed quite an object lesson to the visitors. Although some of the varieties were not up to that standard of perfection usually seen at horticultural shows, owing to the bad season, the display was in the words of the judge, "a credit to any province."—G. Bidlake.

I have been highly pleased with THE CANADIAN HORTICULTURIST, and enclose my renewal subscription. It is a valuable paper to any one engaged in horticultural pursuits. I have perused every issue with much interest, and have gained considerable information. I would not be without the paper. It is worth much more than the subscription price.—E. G. Cooper, Halton Co., Ont.

The Canning of Fruits

Mrs. Colin Campbell, Windsor, Ontario

CANNING is an improvement upon the old-fashioned way of preserving, pound for pound, in sugar. It retains more of the fresh and natural flavor, is far less troublesome to prepare, and more economical.

Choose only perfectly sound and fresh fruits. If you have your fruit to buy, it is false economy to purchase fruits on the verge of decay, even at reduced rates, as they quickly ferment after canning, and you not only lose fruit, sugar and labor, but very often the jars as well.

Before commencing work, have all the requisite utensils and vessels perfectly clean and at hand. If the family is small, select pint jars, which allows a can of fruit to be used up before one tires of it. If there be six or eight to be catered to, a quart jar is none too large. When purchasing new jars, look them over carefully to see that there are no defects and that the covers fit perfectly

Never use old rubbers with the old jars. At five cents a dozen, rings are a cheap insurance of fruit keeping. No matter how good an old rubber looks, it is sure to have become porous and will allow the air to enter. Pour water into each jar, seal and invert, and if it leaks ever so slightly, do not use it.

When you have picked out perfect jars, wash individually inside with a dish mop and hot soda water. Then sterilize by setting in cold water letting it come to the boiling point, and boiling for a quarter of an hour. Fit each jar to a ring, cover and leave in the hot water.

When the fruit is ready to be canned, remove a jar from the boiling water in which it has stood and set it in a soup plate, wrapped in a towel wrung from hot water. Into the jar drop a silver spoon, silver being a good conductor of heat, absorbs the heat from the fruit and lessens any danger of the jars breaking.

Dip the rubber in boiling water and put it on firmly. Set a fruit funnel in a jar and gently fill in the fruit with a ladle, moving the handle of the spoon gently about to allow air bubbles to escape. Fill the jars until the syrup overflows, lift out the spoon, put on the cover and screw it as tightly as possible. Screw the lid on so tightly that when the jar is inverted, not any juice will ooze out.

Leave the jars of fruit lying on their side, turning over frequently until cold. This method will prevent the fruit rising to the top of jar when cold, as is often the case, especially with canned strawberries.

After leaving the jars in this position for 24 hours, wrap in thick paper or place in paper bags to prevent the light bleaching the fruit, and set away in a dark place. Choose the early, cool morning for putting up the fruit ripened under a hot sun. If your berries are to be picked, instead of from the market, gather them the night before.

Fruit which has been picked on a rainy day or when the dew is on will not keep well. Select fruit which is under ripe rather than when ready to drop with luscious ripeness. It will be much nicer when canned and keep more readily. If fruit is very juicy, avoid adding water to it when canning. The less water that has to be used, the finer the flavor of the canned fruit and the more beautiful its color. Never touch cooking fruit with a spoon or fork which is of any material except silver, wood, or granite. A tin spoon may ruin the color and flavor of a whole kettle of fruit.

Try a little of your sugar to make a syrup before commencing the canning process. If a bluish-grey scum gathers on top after the boiling, send the sugar back to the grocery man with an order for a better quality. The best sugar obtainable is a necessity for fruit preserving.

The syrups used for canning or preserving vary according to the kind of fruit you wish to preserve and the richness desired. The following list may be used as a guide: For preserving, use three-quarters of a lb. of sugar to one pound of fruit; for making jam, use one pound sugar to one pound fruit; for canning, use one-third pound sugar to one pound fruit; for jelly, use one pound sugar to one pint fruit.

Lady Grey Garden Awards

The Lady Grey garden competition, in conjunction with the Ottawa Horticultural Society, has done much to improve the appearance of the city of Ottawa, and particularly of the homes of the citizens. The past year proved the most successful in the history of these competitions. The gardens were very creditable in spite of the backward spring and the dry weather during summer.

The committee appointed to examine and judge the gardens was composed of Messrs. W. T. Macoun, chairman; S. Short and H. N. Bate. In a recent report submitted to Her Excellency, the committee made some suggestions for governing the tests in future. As an encouragement to greater effort in the future, the committee suggested that a certificate of entry for the garden awards be given those four persons who failed to qualify for first and second classes. Other suggestions in respect to methods of offering and placing awards were mentioned.

Potato Scab

"Potato Scab," by W. J. Morse (Bull. 141, Maine Agric. Exp. St.)—Aroostook County, Me., bordering on the great potato-growing section of New Brunswick, has long been noted for its fine crops of potatoes, but potato scab has been making rapid headway during the last two years. As a result, there has been a great loss. As scab is caused by a minute parasitic fungus, soil conditions, the application of lime, ashes, etc., may favor its development, but are incapable of causing it. "Alkaline soils, the use of stable manure, lime, ashes, and certain chemicals of an alkaline nature, favor the fungus. Acid soils and certain other chemicals are unfavorable to it." On clean soils only healthy seed tubers should be used. Manure containing uncooked, scabby potatoes or refuse, should be avoided. Small amounts of seed potatoes are best disinfected by soaking for two hours in a solution of formalin (½ pint to 15 gals. of water) or for 1½ hrs. in a solution of corrosive sublimate (2 ozs. in 15 gals. of water).

'RURAL WATER SYSTEMS,' devoted to the subject of the Deming Hydraulic Ram, is the title of a neat little booklet issued by the Deming Company makers of pumping machinery, Salem, Ohio. Its twelve pages illustrate the usefulness of the hydraulic ram in the country home, and, although the main points are covered, it may easily be read through in 10 minutes. It is explained that conditions of installations differ, and that it is therefore desirable to consider each by itself, and to offer suggestions bearing on that particular case. This method is bound to result more satisfactorily to the prospective purchaser than would a general set of rules applied to every case, regardless of conditions. We would advise any of our readers who are interested in this, to write The Deming Company for information, which they will doubtless be glad to furnish on request.

The 15th Annual International Convention of the North-West Fruit Growers' Association will be held in Vancouver, B.C., on Dec. 4-6. For particulars, write to the secretary, Maxwell Smith, Vancouver.

Every Person in Canada who is Interested in Horticulture

should attend the

Ontario Horticultural Exhibition

and take part in the

Conventions for Fruit, Vegetable and Flower Growers

Toronto, November 12, 13, 14, 15, 16

Should Hold Another Conference

THAT the fruit growers of Canada are desirous of holding another Dominion Fruit Conference, and in 1908, is evidenced by the many letters to that effect that have been received by THE CANADIAN HORTICULTURIST. A conference every two years is necessary to keep pace with the rapid growth of the industry. In recent issues of this publication various letters from growers have been published. Our readers are invited to send letters stating their opinions. The following are from delegates to the last conference:

Mr. G. C. Miller, Middleton, N.S.: "It is beneficial for the fruit growers to meet and discuss the various subjects belonging to their business. I would not think once in three years too often for this purpose. Perhaps every two years would be better. This would depend on the amount and nature of material to be brought before the conference."

Mr. R. Brodie, Montreal: "There was a lot of unfinished work at the last conference. Our time was so limited the matter of transportation, for instance, did not receive enough attention. What is the good of inspection, if, by shunting and rough handling, our fruits are bruised and injured? Other matters of equal importance were overlooked. By all means let us have another conference."

Mr. Linus Woolverton, Grimsby, Ont: "I am decidedly in favor of another Dominion Fruit Conference. Quick transportation and easy communication has made the world smaller, and we must meet the new conditions. Questions once affecting only one locality now affect and interest the whole Dominion. In fruit, the whole world is our market, and we want to capture it for Canada in those fruits in which she excels. Cooperation is the cry; we must rally about this watchword."

Mr. D. S. Manson, Winnipeg, Man.: "The success that attended the conference held last year, together with the great advantages which were gained by the suggestions that were made, where they were acted upon by the Government, renders it necessary to have another convention next year. I can think of no better time than about the same date. I think that the subjects for discussion should be left largely to questions of growing and packing of the fruit. It would be unadvisable to ask for any change in the Fruit Marks Act. It is possible that I may change my opinion before the conference is called, but the one year's experience we have had with the Fruit Marks Act goes to show that it is almost as near to what is required as we can make it. When changes are made too frequently, there is trouble in getting the packers to keep pace with them, and it is a feature not to be lightly overlooked. With the Fruit Marks Act properly enforced, the dealers in Winnipeg are in a position to handle the outputs of Ontario and British Columbia growers, if they can put their goods on this market to equal the productions of Washington, California and other fruit producing sections of the United States. Transportation, packing and cold storage are questions that also can be dealt with to the advantage of the growers."

The Coldstream Valley

H. Gordon, Vernon, B.C.

THE premier position in the fruit growing industry of British Columbia is held, without a close rival, by the Coldstream Valley, which contains the largest commercial orchard of the province, and consists of a tract of land remarkably uniform in its adaptability to the raising of fruit. The valley, which lies in close proximity to Vernon, owes its development to the Earl of Aberdeen, who purchased the Coldstream Estate in 1891, and has since then consistently extended his holding, and spared no expense to prove the capabilities of the land. The estate, which is now controlled by a limited liability company, of which the Earl of Aberdeen is chairman, comprises some 13,000 acres, and contains at present 350 acres of orchard, of which 160 acres are in bearing. Surrounding the estate are numerous smaller orchards, ranging from 10 to 50 acres in extent, held by private owners, chiefly settlers from the Old Country and eastern Canada. The company offers irrigated land for sale, in lots of about 20 acres, at $150 to $200 an acre. The varieties of fruit grown upon the estate are apples, pears, prunes, plums and cherries; the apple is the chief product. In 1906, the estate shipped 563 tons of fruit. The chief market is found in the western provinces, but the Coldstream apple is becoming known and appreciated in England, and it is likely that the London market will in the near future absorb a large proportion of the produce of the valley. The estate has developed a system whereby owners of lots may have their orchards planted and cultivated for one, two, three or five years; this arrangement is agreeable to those who do not propose to enter into residence at first, and to those who may wish an object-lesson in fruit culture.

The debt which British Columbia owes to the Coldstream Ranch is great. The Okanagan Valley, in particular, probably owes the best part of its recent development to the enterprise and persistent energy of this estate. Commercial fruit growing has been established in British Columbia as a permanent and profitable industry; the absolute necessity for a complete system of irrigation has been proved; the right varieties of fruit to grow have been selected; excellent markets have been opened up—these are the accomplishments of the last 10 years, in which the Coldstream Ranch has borne the lion's share of the work, and from which the fruit growers of this decade are profiting. It is under the able management of Mr. W. Crawley Ricardo that these developments have taken place, and it is to his initiative that the Okanagan Valley, the Vernon district especially, owes the latest and greatest development, namely, the new irrigation scheme, the main canal of which was formally christened the Grey Canal at the time of the visit paid to it by His Excellency the Governor-General of Canada last year. Two lakes between the hills above the Coldstream Valley have been utilized as storage reservoirs, and their united capacity increased by means of dams to 20,000 acre-feet; that is, a capacity equal to a surface of 20,000 acres covered with water to a depth of one foot. The dam on the first lake, Lake Aberdeen, will be 16 feet high and 200 feet long, impounding water to a depth of 12 feet over 800 acres; the lower lake, Lake Haddo, will also be dammed, and will impound 10,000 acre-feet. The stored water, released through sluice gates, will flow in the bed of a creek for twelve miles, and descend gradually to an elevation of 2,200 feet above sea level, where it will enter the Grey Canal. This canal is 14 feet wide at the bottom and carries three feet of water at a velocity of four feet a second, or nearly three miles an hour. There is a settling basin near the inlet, and a Cippoletti Trapezoidal weir; in parts it has been found convenient to convert the canal into a flume 11 feet wide by three feet deep. A run of about six miles altogether brings the canal to the south side of the Coldstream Valley, where it divides to water the north and south sides respectively. The southern system will amplify and extend the system at present in use upon the Coldstream Estate and its surrounding orchards. The main branch is carried across the valley to the north side in wooden pipes 6,300 feet long, and will enter the north canal at an elevation of 180 feet above the floor of the valley. This north canal will be 24 miles long when constructed as far as projected; it will convey ample water, not only over the Coldstream Valley, but also over the Spallumcheen Valley, seven miles north of Vernon, whence it will reach Okanagan Lake. A total area of 16,000 acres of the best fruit and farming land in the country will thus receive the necessary water for irrigation.

The entire system should be completed in 1910, but the upper portion of the country supplied will receive water next year. The cost of the scheme is estimated at $250,900 the money being supplied by a company of British capitalists. The water will be supplied on a sliding scale of rates based upon the quantity used; it will be measured over Cippoletti weirs, a useful apparatus for the prevention of waste.

The effect of the scheme has been and will be to double and even quadruple the price of the land supplied with water. The soil and climate having been proved conclusively to be suitable for fruit growing, it is certain that large tracts of land will be converted into orchards. Already there is evidence that the inhabitants of Vernon and district appreciate the benefits to be conferred upon them by the scheme, which owes its conception to the foresight of Mr. W. Crawley Ricardo and its successful progress to the ability of Mr. A. E. Asheroft, C.E., who is in charge of the work and to whom I am indebted for most of the facts which I have recorded.

Protect Birds from Cats

Editor, CANADIAN HORTICULTURIST,—Now that such an interest is shown in improving the appearance of our countryside, cities and towns, by planting hedges, bushes and vines, it seems but timely, in order to protect our birds, both from an economic and artistic standpoint, to ask the readers of THE CANADIAN HORTICULTURIST to keep only the cats that are necessary. Such birds as the little chipping-sparrow, yellow warbler, cat bird and robin are a source of great pleasure to all nature lovers, as well as of profit. The little sparrows in the vines by the house may seem troublesome at times, but that can be overlooked when the tender care of the young ones by the parents is observed, and how often they are fed. The same may be said of the robin. There is the disadvantage of the robin's liking for fruit, but who does not long for the robin's cheery note in early spring?

One of the most favorable times for the still hunting of the birds by the cats is after the birds have gone to rest, but when it is still light. Another is when the young commence to fly. It is estimated that a cat destroys 50 birds in a season, so keep them shut up as much as possible during the nesting season, from May to September.—Stuart W. Cody, Sweaborg, Ont.

We have received from Blackie Bros. of Halifax, N.S., a neat little booklet that tells the story of Campbell's Nico Soap, what it will do and how to use it. Many practical men have used this insecticide with much satisfaction.

I have been a subscriber to THE CANADIAN HORTICULTURIST for several years, and find its hints and articles most useful to an amateur gardener.—Mrs. F. T. Frost, Smith's Falls, Ont

Reports on the Vegetable Crop

IN spite of the lateness of spring and dry weather during summer, the vegetable growers of the province have had a satisfactory season, report the crop correspondents of the Ontario Vegetable Growers' Association. On the whole, prices have been good. Rains in early autumn caused rapid growth, although most crops matured later than usual. To offset the unfavorable weather conditions early in the season, the gardeners have been favored with excellent weather for harvesting. The outlook for prices during late fall and winter is good. With potatoes bringing fairly high prices, and high prices in some localities, all kinds of vegetables should sell well.

In many localities, potatoes are turning out better than was expected. They are more uniform in size than usual, and the quality is good. Garden roots, such as beets, parsnips, carrots and turnips, have yielded well, but, generally speaking, they will be scarce on account of the demand. The onion crop has not been much except in the Ottawa district; many growers complain of a large proportion of "thick-necks" or "scallions." It is probable that the marketable onions will not be hurried on to the market; a large percentage of them will be kept over winter. Celery has yielded a good crop, but the quality is not quite up to the standard. Lettuce and radish is fairly plentiful. Salsify, where grown, is plentiful and extra fine in quality. Late cauliflower and cabbage have yielded well, and are of fair quality.

TORONTO DISTRICT

Humber Bay.—Cauliflowers are heading well; there will not be many for winter use. Cabbage have done well since the September rains. Fall spinach is a good crop, but the sale is slow. Lettuce and radish are plentiful. There have been some enquiries for forced rhubarb. Tomatoes, both green and ripe, are plentiful, selling at 35 cents a bushel for green and 50 cents for ripe. Celery is very good, but is bleaching slowly; it will be cheap for a month or two. Parsnips are a heavy crop; carrots and beets, not so plentiful. Artichokes promise a good crop. Onions have not ripened very well, and there are a lot of green "thick-necks" left on the land. Some growers think poor seed is the cause of this.—Jos. Rush.

HAMILTON DISTRICT

Hamilton.—Not for many years have the gardeners had such an excellent year for the harvesting of their crops. In many places, potatoes are reported as a total failure, but not so in this district. The sample has never been any better, and the yield will be an exceedingly large one owing to the increased acreage sown. Present prices are from 90 cents to $1 a bag. The tomato crop has not been very heavy, but the favorable late fall ripened all the tomatoes the canning factories can handle conveniently. The price outside of the factories has netted the growers nearly as much per 11-quart basket as the factories pay per bushel (25 cents). The writer has just learned that the growers in general throughout the tomato growing section purpose holding a meeting at an early date for the purpose of raising the price of tomatoes to 30 cents a bushel for canning purposes for the season of 1908. The onion crop is fairly good; prices are from 80 to 90 cents a bushel. Celery and cauliflower are of good quality, and the crop is very large; fairly good prices are being realized—40 to 60 cents per dozen for celery and 60 to 90 cents per dozen for cauliflower.—Jas. A. Stevens.

OTTAWA DISTRICT

Billings Bridge.—Crops in general are good; turnips, carrots and beets, good; parsnips, good but a little scarce. Cabbage is ahead of what was expected. Celery is a very large crop, but not quite up to usual quality; onions, good with large crop, but growers are evidently holding them back as they are scarce on the market. Lettuce is scarce, but a lot of trash is on the market. Squash are a little scarce, but still there is enough for the demand. Tomatoes are just about done, but have been a heavy crop. Peppers and pickling onions are plentiful. Cauliflower has been a good crop, and of fine quality. Potatoes are a good crop; winter herbs, plentiful.—T. Mockett.

LAMBTON COUNTY

Sarnia.—The growing season for 1907 is nearly over and growers are busy marketing and storing roots and vegetables. Late potatoes are turning out good. Cabbage and cauliflower are good crops, but cabbage is not selling so readily; they will be wanted later, however. With potatoes a good price, all kinds of vegetables will sell well. Carrots and parsnips are a good crop. Turnips and celery are still growing in many places. Gardeners will have good reason to observe Oct. 31 (Thanksgiving Day). With good prices and good crops, we ought to feel thankful and make greater preparations for another year.—W. A. Broughton.

WELLAND COUNTY

Late cabbage, cauliflowers, Swede turnips and late celery are looking fine; they are the best crops here for several years. Beets, carrots and parsnips are a good crop, although very scarce. Late potatoes are being dug; on the whole, they are about an average crop, but in some cases large yields are reported. Onions are scarce. Fall lettuce, radish, spinach and salsify are plentiful. Salsify is very fine this year.—T. R. Stokes.

HALTON COUNTY

Burlington.—Tomatoes were badly frozen the middle of the month. The crop was anything but a profitable one. Onions are a fairly good crop; 40% of the crop will be kept over winter; the present price is 90 cents a bushel. Parsnips, table carrots, late cabbage and cauliflowers have been a good crop. Celery also has been fairly good and price fair. Late potatoes are a good crop in many places, especially those that were planted extra late. About $1 a bag is the usual price.—J. A. Lindley.

Horticultural Exhibition

The directors of the Ontario Horticultural Exhibition have about completed arrangements for the exhibition to be held in the Massey Hall, Toronto, on Nov. 12-16. The exhibition this year promises to surpass in every respect all previous efforts. The number of entries will be far in excess of last year. For the fruit section, the following judges have been appointed: Commercial packages, Msesrs. Alex. McNeill, Chief, Fruit Division, Ottawa, and D. Johnson, Forest; plate apples, A. W. Peart, Burlington; grapes and pears, Murray Pettit, Winona; preserved fruits, a committee of ladies. Seventeen counties have made grants to encourage the making of county exhibits of apples at the exhibition.

For the vegetable section, the judges probably will be Messrs. Thos. Wistow, of London, and Frank Williams, of Ottawa. The vegetable committee is looking forward to a most successful exhibition in that section.

At a recent meeting of the general committee and management, it was recommended that steps be taken to have the same committee of ladies that acted last year, or any others that may be appointed by Lady Mortimer Clark, who honored the exhibition last year with her services as judge, to act as the judges of the dining tables. It was decided also to ask a committee composed of the editresses of the society columns of the Toronto daily press to act as the judges on baskets of cut flowers. It is probable that the other judges will be as follows: Plants, roots and cut 'mums, Mr. W. Wilshire, Montreal, or Mr. Jos. Bennett, Montreal; carnations, roses, violets and funeral designs, Mr. W. C. Tidy, Toronto, or Mr. M. E. Anderson, Buffalo.

RAILWAY RATES

People from points in Ontario outside of Toronto who expect to attend exhibition or the conventions that will be held during the same week, will be able to do so at lowest one-way, first-class fare as follows: On Nov. 13 and 14, special excursions will be run by the railways to Toronto from all points in Ontario, at lowest one-way, first-class fare. Railway tickets bought on these dates will be good for return up to and including Nov. 16. People desiring to attend the conventions or exhibition on other dates will be able to do so at the same rate, but it will be necessary for them to obtain Standard Certificates from their station agent when they purchase their tickets to Toronto. One-way tickets to Toronto, with Standard Convention Certificates, can be purchased from Nov. 8 to 16 inclusive, and will be honored for the return journey free, regardless of the number in attendance, up to and including Nov. 20, 1907. These certificates must be endorsed by the secretary at the exhibition in Massey Hall before they will be honored by the railways for the return trip. A fee of 25c. will be charged for each certificate vised.

Convention Programs

A few changes have been made in the programs published in the last issue of THE CANADIAN HORTICULTURIST. At the convention of the Ontario Horticultural Association, which will be held in Toronto on Nov. 14 and 15, the address on "How Are We to Expend Our Funds to the Best Advantage?" will be delivered by Rev. A. H. Scott, M.A., Perth, Ont., and the discussion will be led by Mr. G. A. Pearce, Park Superintendent, London, Ont. Mr. John O. Cheyne, of Windsor, Ont., will speak on "The Best Methods of Increasing the Membership of a Horticultural Society," and the discussion will be led by Dr. J. S. McCallum, Smith's Falls, Ont. An address entitled "Cities and Towns Beautiful," will be given by Mr. J. S. Pearce, London. Mr. John Dickson, of Hamilton, will speak on "Wild Flowers Worth Growing," and the discussion will be led by Principal Wm. Scott, Normal School, Toronto.

VEGETABLE TOPICS

One of the important subjects at the meeting of the Ontario Vegetable Growers' Association, on Nov. 14 and 15, will be "Greenhouse Construction for Vegetable Growers," by Mr. J. D. Fraser, Leamington, Ont. The discussion will be led by Mr. Robt. W. King, Toronto. A paper on "Greenhouse Management" will be read by Mr. T. Delworth, Weston, Ont., and the discussion will be led by Mr. A. McMeans, O.A.C., Guelph. Another important address that will be delivered is "The Vegetable Canning Industry," by Mr. T. B. Revett, B.S.A., Department of Agriculture, Toronto. This is a question of much importance to vegetable growers. Mr. Revett has spent some three years in investigating the situation in Ontario. It may be expected, therefore, that much valuable information will be gained from this paper and the discussion that will follow.

The annual meeting of the Entomological Society of Ontario will be held at the Ontario Agricultural College, Guelph, on Oct. 31 and Nov. 1. In the afternoon of the former day, it is expected that there will be a general discussion on the codling worm and other insects injurious to fruits. There will be public meetings on both evenings. Dr. Fletcher, of Ottawa, will preside over the meetings.

Get your friends to subscribe for THE CANADIAN HORTICULTURIST.

Canada's Most Reliable Nurseries

Grape Vines

True to name, home grown and pronounced by specialists "*The Best.*"

Thousands of Concords, Niagaras, Rogers, Wordens, etc., in one year and two year stock at right prices.

Apple Trees

Thousands of Stark, Baldwin, Gano, Ben Davis, Wealthy, Duchess, Wolfe River and the best commercial varieties.

"GRAPES FOR PROFIT"

Photograph of a bunch of Concords growing on Helderleigh stock

Currants (Black and Red)
Gooseberries
Raspberries
Thimbleberries

Grown right in the choicest spots of the Niagara Peninsula to obtain the best of root systems.

Plum Trees

A complete line of all kinds of Europeans and Japanese.

Pears, Dwarf and Standard.

Peaches, unlimited quantities

The most complete and up-to-date stock of thrifty, home-grown Fruit Trees in the Dominion of Canada

THUYA COMPACTA

One of the many thousands of ornamental conifers at Helderleigh

Cherries, Quinces, and in fact everything for the Orchardist and Fruit Grower.

Ornamentals

A varied and complete stock of Evergreens and deciduous Trees and Shrubs.

Weeping Trees and Vines grown to suit the most critical planters.

Write for Free Catalogue

Few vacancies for first-class Salesmen with undoubted credentials.

TEAS WEEPING MULBERRY

A specimen growing at Helderleigh

ACREAGE 800 ACRES

E. D. SMITH

Winona — Ontario

ESTABLISHED ¼ CENTURY

Mention The Canadian Horticulturist when writing

Our Horticultural Societies

Mr. Wm. Hunt, of the Ontario Agricultural College, had quite a tour among the horticultural societies and fairs this season, having visited and made the awards at Fergus, Owen Sound, Stratford, Elmira, St. Catharines, Tillsonburg, Elora, Galt, and Brantford societies' annual shows, as well as at the Guelph Central and North Grey (Owen Sound) fairs.

One feature at all the societies' shows was the growing interest taken in the exhibits of plants and flowers made by the school children. It is a new feature introduced this season at several of the shows, and the directors of these were more than pleased at the interest shown by the children in the work, and still more from the fact that the exhibits made by the young people were the chief centre of attraction to the largely increased attendance of adults at the shows from that in past years. This fact was especially noticeable at Galt and Elmira. Mr. Brodie, president, and the executive of the Galt society, were much pleased at the success of the exhibits made by the school children, and the interest and attendance at the show of the citizens generally.

Mr. W. W. Livingstone, the energetic secretary of the Tillsonburg society, was more than repaid for his untiring efforts to make this, the first show of the Tillsonburg society, a success. The exhibit of cut flowers by the school children at this show was particularly noticeable, and attracted much attention and favorable comment from the large number of visitors at the show in the evening.

The children's section of the exhibit at Elmira was particularly good. One feature on the premium list was rather unique in character, being premiums offered for aster plants in pots having the largest number of buds and blossoms. The first prize was awarded to a plant that had over 150 buds and blossoms on it in some stage of development, the second prize plant having over 120. Several other fine pot specimens of this popular annual came very near to the foregoing in point of size and number of buds. This speaks well for the attention and culture given them.

The Brantford society's annual exhibit was devoted entirely to a display of cut flowers grown by the school children. The exhibit was a pronounced success, as evidenced by the large turn-out of parents and citizens generally at the show in the evening. Several prominent citizens who were present were loud in their praises of the splendid exhibit and work being done by that society, and promised their hearty cooperation and assistance in the work during the coming season. Mr. Rose, the president, and Mr. Walter J. Brooks, the secretary, as well as the executive generally, received many compliments for the good work they are doing.

The Elmira and Tillsonburg societies are also interesting themselves in the beautifying of the town park lots, another very commendable and much needed line of work for our societies to take up in the smaller towns and villages. A few years ago, prior to this work being taken in hand by the societies in the places mentioned, there was little, if any, attempt made to have the park lots bright and attractive. During the past season the change in this respect has excited much favorable comment from visitors to the pretty little towns mentioned

The exhibit of gladioli and asters at the Guelph Central Fair made by the children of the city and rural schools was very fine. The seeds and bulbs, as well as printed cultural directions, were distributed by the Guelph Horticultural Society.

The aim of all our societies should be to get the young people interested in floriculture and horticulture, as well as the older people. In doing this, the success of the society and the shows is assured, and a great and lasting good done in our homes and in the community.

Seedling Apples of Maine

Bulletin 143 of the Maine Experiment Station, "The Seedling Apples of Maine," is just being sent out. The purpose of this bulletin is to call attention to those varieties of Maine origin which are worthy of wider dissemination; and to record, as accurately as possible, the history of such varieties.

While Baldwin, Greening, and other standard varieties, mostly of New England origin, will doubtless remain for many years the leading market sorts, new and valuable sorts are continually appearing, and these will be most likely to excel near their native home, or in their native state. The wholesale injury to orchards by the cold of the past few years is also an incentive to search out the merits of native hardy varieties.

Among the most valuable of the 38 native sorts mentioned in the bulletin, are Deane, Dudley, King Sweet, Rolfe, Starkey and Stowe. Some of those described in pomological manuals are said to be wholly or practically extinct, though at one time of considerable importance.

An effort is being made at the Station to collect in a "Maine Orchard" such native seedlings as seem to merit attention, and owners of valuable seedling apples are requested to forward specimens of the fruit for examination.

There is a diversity of opinion among fruit growers on the question of the low-heading of fruit trees For the benefit of the readers of THE CANADIAN HORTICULTURIST, fruit growers and nurserymen are invited to contribute letters on this subject for publication.

Your paper is certainly up-to-date, and has some good pointers in the fruit line.—H. G. Lawrence, Westminster, B.C.

Enclosed please find 50 cents for my subscription to the best horticultural paper published in America.—R. S. Hood, Galt, Ont.

Dominion Line

ROYAL MAIL STEAMSHIPS

"Alberta," new steamer, 14,000 tons, building
"Albany," new steamer, 14,000 tons, building

MONTREAL TO LIVERPOOL

SS. "KENSINGTON" . . . Nov. 9th
SS. "SOUTHWARK" . . . " 16th

PORTLAND—LIVERPOOL

SS. "OTTOMAN" . . . . . Nov. 23rd
SS. "CORNISHMAN" . . . " 30th

MONTREAL TO AVONMOUTH

SS. "MANXMAN" . . . . Nov. 9th

PORTLAND TO AVONMOUTH

SS. "TURCOMAN" . . . . Dec. 5th

Favorite Steamers for all kinds of perishable cargo having fan ventilation, cold storage, and cool air chamber.

GEORGE W. TORRANCE, Freight Agent . 28 Wellington St. E., TORONTO
M. A. OVEREND, J. W. WILKINSON . . . . . Travelling Freight Agents
DOMINION LINE—MONTREAL and PORTLAND, Maine.

Mention The Canadian Horticulturist when writing.

Northern Grown Plants MEAN SUCCESS

OUR SPECIALTY IS Ornamental Trees and Shrubs, but we carry also a full line of the best Hardy Fruits. ¶ We have several hundred especially fine Azalea Mollis, well budded and bushy, perfectly hardy for out of doors, or they may be flowered inside

CANADIAN NURSERY CO., LIMITED
POINTE CLAIRE, P. Q.

Mention the Canadian Horticulturist when writing

Affects Color of Apples

In a recent bulletin of the Geneva Experiment Station, Prof. U. P. Hedrick summarizes the effects produced on the color of apples by wood ashes and acid phosphate thus: Because of the condition of the growth of plant, manner of development of the product, and nature of both plant and product, the apple is difficult to deal with experimentally in the matter of fertilization. The apple growers in New York should give attention to the fertility of their soils, for the orchards are growing old; the soil of some orchards was not originally fertile, and double cropping has exhausted the fertility of many orchards. This experiment has to do with potash, phosphoric acid and lime as found in wood ashes and acid phosphate. It was begun in 1893 and was completed in 1904. The seat of the experiment is a 55-year-old plat on the station grounds. The location is a sloping upland with a heavy medium clay soil. The orchard has been in grass several years before the experiment.

Throughout the experiment the orchard was given clean cultivation until about August 1, and was then seeded to a cover crop of oats, barley or clover. The trees were 43 years old when the experiment was started. There were 94 trees in the test, representing the following varieties: Baldwin, Greening, Roxbury, and Northern Spy.

The effects of the fertilizer were measured by two standards, yield of fruit and color of fruit. From a financial standpoint, the results are practically negative. The estimated increase in value of the crop on treated plats for a hypothetical five acres is $99. The estimated value of the fertilizers for the above area is $74.50, leaving a gain of but $24.50, which does not more than pay for handling the fertilizers. An interesting fact is that both treated and untreated plats increased markedly in yield from 1893 to 1904. The results as to color of fruit lack uniformity, and were not decided enough to enable us to state that the fertilizers applied improved the color of the apples. The influence on color was most marked in the seasons when the climatic conditions were unfavorable to the development of the fruit.

This experiment showed that 57 years of orchard cropping has not reduced the soil of the station orchard to the condition where it needs a complete fertilizer. The fact that plowing under leguminous crops gives beneficial effects in the orchard, shows that the soil is having a one-sided wear. It needs nitrogen and humus rather than potash and phosphoric acid.

The great improvement in the class of ships using the St. Lawrence route to Great Britain has done much to encourage travellers to choose that route. The latest addition to the fleet is the S.S. Grampian of the Allan Line. This ship arrived in Montreal from Glasgow on Oct. 1. A representative of THE CANADIAN HORTICULTURIST, while in Montreal recently, inspected the cold storage appartments on this ship. They are in every way adapted for the successful carrying of fruit to the British markets. The passenger accommodation is better than that usually found on this class of ships.

POULTRY DEPT.

Conducted by S. Short, Ottawa

Farm Poultry vs. Fancy

In the last issue of THE CANADIAN HORTICULTURIST it was promised that these subjects would be continued in this issue. The object in view in writing on the above question is to try to show the advantages of the latter phase of poultry culture over the former. With farm poultry, it is meant ordinary barnyard poultry, good layers, perhaps, and hardy, good-sized market fowl. The owner is restricted to two channels of revenue—the sale of eggs and the sale of dressed or live birds for table purposes.

In order to make a livelihood with farm poultry, a large number of fowls must be kept. Experts say $1 profit per hen annually is a fair profit. To make that amount per hen, it would mean that 700 or 1,000 hens would need to be kept. It would require an active, intelligent person to look after that number, and no man of average ability, in the prime of life, would work for less than $700 per annum, nor could he, when the upward price of the necessities of life are considered. My opinion is that 50 cents

H. H. & S. BUDGETT & CO., LIMITED
BRISTOL, ENGLAND

Importers of Canadian Apples. Liberal allowances made to reputable shippers on bills of lading at Montreal. Write at once for further particulars regarding our method of disposing, and payment for first-class Canadian fruit.

IF YOU HAVE APPLES OR POULTRY TO CONSIGN

we can handle them for you to advantage. If apples are in car lots, write us and we can sell them for you f.o.b. your station

THE DAWSON COMMISSION CO. Limited
Cor. West Market and Colborne St.
TORONTO ——— ONTARIO

APPLES
BOUGHT
OR SOLD
GEO. VIPOND & CO.
MONTREAL - QUEBEC
Branch—Winnipeg, Man.
Mention The Horticulturist when writing

TARGET BRAND

SCALE DESTROYER

Kills San Jose Scale

TARGET BRAND SCALE DESTROYER is a positive and reliable agent for the destruction of San Jose Scale. If your orchards are infested with this troublesome pest you can clean them out with this preparation, and make your trees healthful and prolific fruit-bearers. It never fails, but can be relied upon to do the work when used according to instructions. It is

Positively Guaranteed

harmless to trees or fruit, and effective in operation. It is a soluble oil, which, when diluted—one gallon of oil to 20 gallons of water—can be applied with any good spray-pump without clogging the nozzles or giving any trouble whatever. This method is much more rapid and effective than a Lime-Sulphur wash, requires no skilled labor, and there is no risk of injuring the tree.

Target Brand Scale Destroyer

is more effective, less disagreeable to handle, and costs no more than Lime-Sulphur Wash. Try it if you want satisfactory results. Endorsed by leading fruit-growers everywhere. Write for our new illustrated Spraying Catalog and price-list, and Bulletin, "Dipping vs. Fumigation." SENT FREE.

AMERICAN HORTICULTURAL DISTRIBUTING CO., Box 705, Martinsburg, W. Va.

W. H. BRAND, Canadian Representative, JORDAN STATION, ONT.

profit per hen is a safer estimate when only farm poultry is kept. Something, of course, depends on the price of poultry food and the poultry market in the locality where the breeder lives. At the prevailing price of all grains, it is going to be a doubtful matter whether any profit will be made at all for the next four months.

With fancy poultry, the situation is quite different. The term "fancy poultry" may not appeal to a great many. It savors too much of prettiness without usefulness, style without utility. Such is not the case. I will admit that there are many breeds of fancy fowl that are more ornamental than useful. There are, also, many breeds that are eminently practical, such as the Wyandotte, Plymouth Rock, Orpington and Leghorn. With the same care as given to nondescripts, the females of the breeds mentioned will lay just as well; the males will make better table birds and the breeder knows where he is at. If he wants a hen weighing about six pounds, he chooses the Wyandotte; seven pounds, either Rocks or Orpingtons will do; or, if a laying machine is required, the Leghorn. The fact is, that where pure-breds are kept, more care is given and there is, consequently, better returns, for the owner is justly proud of his fine stock and leaves nothing undone that will add to their well-being.

The sources of revenue are two or three times greater than from farm poultry. There is no reason, if careful selection of the layers is made, why the egg returns should not be as large the season through from pure-breds as from any other fowls. There is the winter egg revenue and then, in April, May and June, the months when eggs are more plentiful and cheapest for table, there is the revenue from the sale of eggs for hatching, the average price of which is $2 per 13 in this province, the price being regulated by the quality of the stock. Again, in the autumn, when ordinary cockerels are sold dressed at 80 cents to $1 a pair, $1 up may readily be obtained for good cockerels which are fair specimens of the breed to which they belong.

To become properly established in the production of fancy poultry, will require perhaps a little more outlay at the beginning. Good, high-class breeding stock should be procured. Handle one breed at first and make a careful study of it and show your stock at the best shows. This gives an opportunity to compare your stock with that of other breeders. It is the only way to obtain expert knowledge of the show points of your birds. If prizes are won, it will give your stock a good standing and good advertising. When business begins to come in treat customers honestly and generously and success is assured.

I find THE CANADIAN HORTICULTURIST a great help in every way.—H.G., Marchmont Ont.

The Canada Cold Storage Company LIMITED

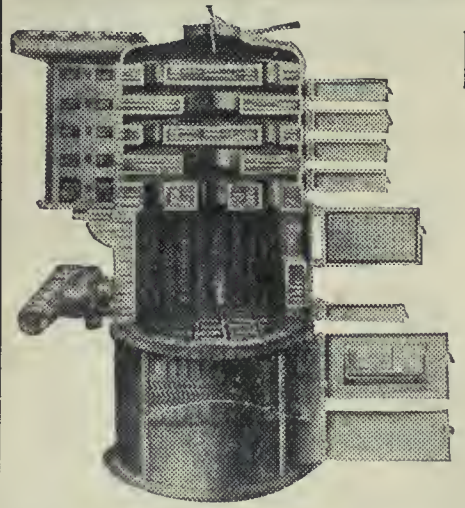
MONTREAL, QUE.

The largest and best equipped warehouse in Canada. Offers first-class refrigeration for all perishable goods. Special rooms for apples and fruit of all kinds

BUTTER, CHEESE, MEATS, POULTRY, ETC.

CARRIED AT ANY TEMPERATURE REQUIRED

Mention the Canadian Horticulturist when writing



Don't Wait Till the Frost

Make arrangements to have your heating plant in your conservatory in good order before the weather turns cold.

"SOVEREIGN" Hot Water Boiler

has given universal satisfaction as an economical and reliable heater. Works equally well with city water service or tank supply.

OUR BOOKLET, "EFFICIENT HEATING," FREE TO ANY ADDRESS

Taylor-Forbes Company, Limited, Guelph, Ont.

1088 King Street West, Toronto 122 Craig Street West, Montreal

Mention The Canadian Horticulturist when writing

For Churches and Schools

Just one Ceiling is ideal for churches and schools, for its beauty, cleanliness, economy—for its sanitary perfection (no seams to catch dirt)—for its fire-proof qualities

PEDLAR ART STEEL CEILINGS

Above 2,000 modern designs in every style of good art—side-walls to match in harmony with interior schemes—adapted to any color-scheme or architectural motive. Allow us to send you illustrated details and quote prices. Address 209

The PEDLAR People [Est'd 1861]

Oshawa Montreal Ottawa Toronto London Winnipeg

Fine Dry

Some Salts have lime and other impurities in them—which makes them coarse and gritty.

Windsor Table Salt

—on chemical analysis—was found to be the purest of the principal brands on the British and American market.

Pure 173

Home Gardening for Beginners

Send us three new one year subscriptions to THE CANADIAN HORTICULTURIST, and we will forward you this valuable guide and practical adviser for novices in garden making. It is nicely bound in cloth, fully illustrated, and contains about 300 pages. The regular price is $1.00, but we will send it to any reader of THE CANADIAN HORTICULTURIST who will send us three new subscriptions.

The Canadian Horticulturist, Toronto, Ont.

A Healthy Growth

No better evidence of the growth of THE CANADIAN HORTICULTURIST can be shown than the comparison between the October, 1906, and October, 1907, issues. In October, 1906, we circulated 5,000 copies of THE CANADIAN HORTICULTURIST. This issue, November, 1907, we are circulating over 10,000 copies of THE CANADIAN HORTICULTURIST. A number of these copies are being sent to our friends whom we know to be interested in horticulture, but who are not regular readers of THE CANADIAN HORTICULTURIST. If you are one of these, and this copy of THE CANADIAN HORTICULTURIST contains matter of interest to you, we trust that you will help support Canada's only horticultural paper by subscribing. The subscription price was reduced one year ago from $1.00 to 50 cents a year, and since then our circulation has increased by leaps and bounds.

This number is but one of twelve issues, each of which we try to make better and stronger than the previous issue. Here are a few of the opinions of our readers regarding THE CANADIAN HORTICULTURIST. They speak for themselves:

"I believe that THE CANADIAN HORTICULTURIST is the publication I have long been looking for. Enclosed find two new subscriptions."—E. H. Toll, Ouvry, Ont.

"THE CANADIAN HORTICULTURIST has advanced wonderfully in the last two years. I believe that it is the opinion of the fruit growers of this province that the paper is the best fruit growers' paper now published, and that there is no longer any necessity of going to the United States for such a publication."—P. W. Hodgetts, Secretary Ontario Fruit Growers' Association.

"Enclosed find my subscription to THE CANADIAN HORTICULTURIST. I think your paper a most valuable one, especially to amateur horticulturists."—W. F. Bailey, Winnipeg, Manitoba

THE CANADIAN HORTICULTURIST competes favorably now with any horticultural paper published. It deals exclusively with Canadian horticultural interests. It is published in Canada by Canadians, and it treats all Canadian horticultural affairs in both a timely and practical manner We want every fruit, flower and vegetable grower in Canada to receive it regularly. If you are not already a subscriber, send in your subscription immediately, and take advantage of our special premium offer. Or, if you are a subscriber, send in your own renewal, together with one new subscription, and you will be entitled to a liberal premium.

Inspection at the Coast

Editor, THE CANADIAN HORTICULTURIST: I wish to answer part of your articles in the July and August numbers of THE CANADIAN HORTICULTURIST, re "Inspection at the Coast." It is quite evident that you have been "stuffed" by some party interested in the sale of outside nursery stock, and it is the same "ear marks" that I have had repeated to me from travelling agents, that "coast trees are sappy and soft"—any old story to sell their stock.

How is it that 458 trees out of one sale of 460 delivered to one Revelstoke customer, are reported alive and thrifty, while he reports about one-third dead out of an eastern shipment? This is in a country where four feet of snow is a common occurrence. Again, one customer at Lytton planted 640, and reports ALL alive and thrifty. I sell thousands of trees all over B.C., from Atlin to the prairie country, and no complaints of their being winter-killed.

Again, you say coast trees become black-hearted. I have a letter from our inspector, saying that "the only black-hearted trees he ever found was in eastern stock." I am quite well aware that our coast nurseries are not as large as the rented lands of some eastern firms, as land anywhere near the cities is worth from $500 to $2,000 an acre; even Chinese gardeners pay $30 to $40 an acre rental. But, we have the same facilities of purchasing stock from

THICK, SWOLLEN GLANDS

that make a horse Wheeze, have Thick Wind, or Choke-down, can be removed with

ABSORBINE

or any Bunch or Swelling caused by strain or inflammation **No blister, no hair gone,** and horse kept at work. $2.00 per bottle, delivered. Book 3-C free.

ABSORBINE, JR., for mankind, $1.00, delivered. Cures Goitre, Tumors, Varicose Veins, Hydrocele, Varicocele. Book free. Made only by

W. F YOUNG, P. D. F., 194 MONMOUTH ST. SPRINGFIELD, MASS.

Canadian Agents, Lyman, Sons & Co., Montreal

FOR SALE AND WANT ADVERTISEMENTS

Advertisements under this heading inserted at rate of one cent a word for each insertion, each figure, sign or single letter to count as one word, minimun cost, 25 cents, strictly cash in advance.

LANDSCAPE GARDENING.—Mr. C. Ernest Woolverton, Landscape Designer, care of W. H. Manning, Boston, Mass.

WASHINGTON COUNTY, ARKANSAS, COMPRISES a large part of the Ozark Fruit Belt, and wants twice its population. Fayetteville, "The Athens of the Ozarks," the County Seat and metropolis of Washington County, wants new business enterprises. A land of great opportunities for business man and farmer alike. Write FOR NEW DESCRIPTIVE AND ILLUSTRATED BOOKLET. THE COMMERCIAL LEAGUE OF FAYETTEVILLE, E. R. WILLSON, Secretary, Fayetteville, Ark.

50,000 PLUM TREES IN THIS BLOCK

APPLE SPECIALTIES	PLUM SPECIALTIES	PEACHES	SMALL FRUITS
Jones Red Fameuse	Maynard	Fitzgerald	Herbert Raspberry (Red)
Peerless	Klondyke	Elberta	Cumberland " (Black)
Payne's Late Keeper	Red June	Kalamazoo	Gainor Blackberry
Windsor Chief			

Nurseries Pelham, Ont.

PELHAM NURSERY CO.

TORONTO ——— ONTARIO

Our Catalog tells the truth

Books for Fruit Growers

Grape Culturist

By A. S. Fuller. This is one of the very best of works on the culture of the hardy grapes, with full directions for all departments of propagation, culture, etc., with 150 excellent engravings, illustrating planting, training, grafting, etc. 282 pages, 5 x 7 inches. Cloth..... $1.50

Successful Fruit Culture

A practical guide to the cultivation and propagation of fruits, by Samuel T. Maynard. This book is written from the standpoint of the practical fruit grower who is striving to make his business profitable by growing the best fruit possible and at the least cost. It is up-to-date in every particular, and covers the entire practice of fruit culture. Illustrated. 274 pages. 5 x 7 inches. Cloth..... $1.00

Insects and Insecticides

By Clarence M. Weed. A practical manual concerning noxious insects and methods of preventing their injuries, with many illustrations. 334 pages. 5 x 7 inches. Cloth..... $1.50

Spraying Crops

By C. M. Weed. A treatise explaining the principles and practice of the application of liquids and powders to plants for destroying insects and fungi. Illustrated. 140 pages. 5 x 7 inches. Cloth. 50 cents.

These are only a few of the books we handle on horticultural subjects. If interested, write for our free catalog of books.

THE HORTICULTURAL PUBLISHING COMPANY

506-7-8 Manning Chambers - Toronto

other nurseries that eastern firms have. A few years ago, while living in Ontario, I saw, while working in a prominent nursery, quite a number of boxes of trees from American growers being repacked and shipped out to the Canadian nursery's customers in Canada.

You say there are "some small concerns in British Columbia that have, probably, excellent stock, but only a small list to choose from," and that customers can get older and larger trees from the east. I have mailed you my catalog, listing 29 varieties of plums and prunes (including the "Maynard," which I have been propagating for several years), 20 varieties of pear, 11 varieties of peach, 16 of cherry, 78 of apples, and about all the leading varieties of small fruits suitable for this climate. If these are not enough we will produce more. As you will notice, I am listing these in one, two and three-year-olds, and as our one-year growth from the bud is from four to six feet, our two-year trees are larger than the so-called three-year eastern stock. Hence, that cry will not hold water.

As far as the inspection stations are concerned, quite likely the Board of Horticulture will attend to establishing more stations as soon as they see the need of it. As to "discrimination," I cannot believe it, as no favors are shown; but, where stock is infested with dangerous pests, or diseased, it is destroyed, irrespective of where it comes from or to whom consigned. Every British Columbia nurseryman is obliged to put up a bond and take out a license, the same as is required of outside firms.

I have been a member of the British Columbia Horticultural Society ever since it originated, but this is the first I have heard of any of those "indignation meetings." I trust that you will give this letter the same prominence that you gave your editorials.—M. J. Henry, Vancouver.

Send for our free book catalog.

Inspect at Revelstoke

Editor, THE CANADIAN HORTICULTURIST,—The establishing of an inspection station at Revelstoke for fruit trees and shrubs is a move in the right direction and something that is much needed. The Kootenay country is getting to be quite a fruit growing district, and the difference in transportation and freight will be great from eastern firms; whereas, at present the trees have to be shipped to Vancouver to be inspected and to be shipped back to these points. This makes a difference of about 1,000 miles, which often takes a couple of weeks' time. Fruit trees as a rule do not improve under this mode of treatment. The sooner they can be transplanted the better.

If an inspection station is started at Revelstoke, I presume that trees shipped from the east to Kamloops and Okanagan will also be inspected at Revelstoke. That will be quite a saving to this part of the country as well. It will make a wonderful difference to eastern firms, for they are almost prohibited from competing with the coast firms, and Oregon, for the up country trade. I have always been partial to eastern trees myself, for they are better adapted to the climatic conditions of our country. I have planted trees from both places, and eastern trees have given me the best satisfaction. I hope and trust that an inspection station will be started at Revelstoke, and the government will be commended for taking such action.—John T Edwards, Kamloops, B.C.

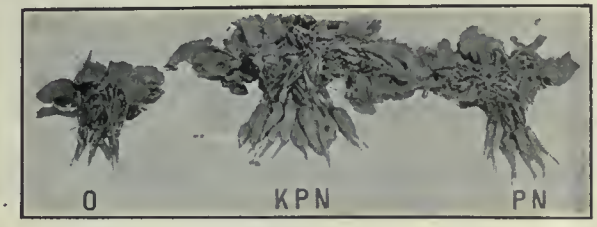
Hurry It Along.—Enclosed find $1.20 for which please send me THE CANADIAN HORTICULTURIST for three years. This is just the magazine I have been looking for. It seems rather odd that it had not come to my notice before. I thought surely Canada should have at least one horticultural magazine. Start me at once and hurry it along.—Chas. H.Heidt, Field, B.C.

POTASH

for FIELD, GARDEN, ORCHARD

POTASH promotes maturity and counteracts the effect of an excess of nitrogen in the soil produced by a too heavy application of farmyard manure or from other causes. POTASH is a direct plant food and is indispensable.

Fertilizer Experiment on Radishes by Otto Herold, Waterloo, Ont., 1906



Treatment: Unfertilized — With Potash — Without Potash
Result: Non-saleable — $200.00 — $20.00 per acre realized

POTASH in the highly concentrated forms of Muriate of Potash and Sulphate of Potash is obtainable of all leading Fertilizer Dealers.

Pamphlets treating of the cultivation and fertilization of all farm crops will be sent free on application.

The Dominion Agricultural Offices of the Potash Syndicate

1102, 1105 TEMPLE BUILDING, TORONTO

Mention The Canadian Horticulturist when writing

THE NEW WAY

THE OLD WAY

THE WAGGONER EXTENSION LADDER

is what you want for pruning and picking; also for general use about the place. It is reinforced with steel wire and is the lightest, strongest and handiest ladder made. Write for free illustrated circulars and price list.

The Waggoner Ladder Co. Limited

LONDON, ONTARIO

Mention The Canadian Horticulturist when writing

Toronto Exhibition

Editor, THE CANADIAN HORTICULTURIST,—My first visit to the Toronto Exhibition has induced me to rush into print, and give you my impressions of the show. In introducing myself to your readers I may state that I am a British gardener of some 30 years' practical experience, gained in some of the finest gardens in the south of England, visiting the great flower and fruit shows in London, judging and assisting in some of the small shows, which are held in nearly every town and village throughout the old country. This being my second year here, I claim to know something of what I am writing about. I did not expect to find the exhibition to equal The Temple Show or the Fruit Show at the Crystal Palace. In writing these notes I have not the slightest wish of disparaging the show or to hurt any exhibitors' feelings, but, to raise the horticultural department to a higher standard by these comments.

On passing through, the question arose in my mind: "Have the arranging committee made the most of the beautiful hall, by placing the different exhibits to the best advantage, so that the gardener could set up his plants, could be judged correctly, and the visitors could see something beautiful in plant life?" I would suggest that the groups be placed in the centre of the hall, so that the gardener could show his skill in grouping, providing he covered the number of feet stipulated. placing the single exhibits along the sides, and not huddling them up as the dracænas and other plants were. The latter were not set fair to judge, and the public could not see to advantage. In this land of sunshine, it is quite an easy matter to get more color in the foliage plants, and the least that I can say of the flowering plants is that they were a disgrace.

Coming to the vegetable section. Cannot the collection of vegetables be set up in a more artistic way than merely dumping them on the bare tables, without a bit of green to set off their merits? Are not tomatoes, cucumbers, and so forth, worthy of a plate or something to set them on, and why should the collection of peppers have two yards of bare table? Why does not the trade put up an exhibit, and show the visitors what they sell? Make it attractive. It is advertising and the reward will be forthcoming. Little fault could be found in the judging. One pointer, however, is not to award the first prize to a pair of yellow, thick, old greenhouse cucumbers, when a pair of slender, long dark green are near at hand.

It is quite evident that the Toronto directorate have horticulture at heart, and wish for its prosperity, or they would not build a fine hall and furnish a substantial prize list. I think, as a matter of justice, they have a right to expect the assistance of the trade, and the general exhibitor in furthering its improvement. There are many fall fairs scattered through the Dominion now. The directors of the same look to Toronto for their cue on how to run a fair. Any improvement would be readily taken up. Set your standard high. If you do go slow, get there! Let every exhibitor put in his best and not simply fill a class to gain the awards.—Frank Gilbert, Simcoe, Ont.

A British Columbia Need

Editor, THE CANADIAN HORTICULTURIST,—As you invite expressions of opinion respecting the establishing of a fumigation station at Revelstoke, B.C., I ask for space for a little comment on this all-important question. As a pioneer fruit grower and a fruit tree agent for the past 10 years in the Kootenay district of British Columbia, I may say that I was salesman for the Pelham Nursery of Co., Toronto, then agent for Graham Bros., of Ottawa, and next for Brown Bros. Nurseries. All these are reliable nursery firms, but are handicapped to a large extent by the British Columbia law,

Warranted to Give Satisfaction.

Gombault's Caustic Balsam

Has Imitators But No Competitors.

A Safe, Speedy and Positive Cure for Curb, Splint, Sweeny, Capped Hock, Strained Tendons, Founder, Wind Puffs, and all lameness from Spavin, Ringbone and other bony tumors. Cures all skin diseases or Parasites, Thrush, Diphtheria. Removes all Bunches from Horses or Cattle.

As a Human Remedy for Rheumatism, Sprains, Sore Throat, etc., it is invaluable. Every bottle of Caustic Balsam sold is Warranted to give satisfaction. Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

The Lawrence-Williams Co., Toronto, Ont.

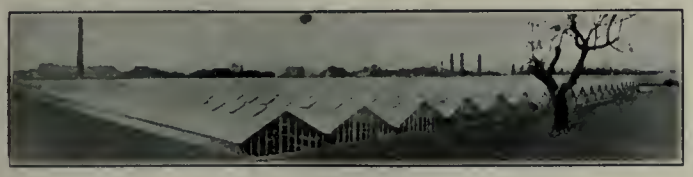
THE SUPERIOR MFG. CO. STENCIL BRANDS AND RUBBER STAMPS

WE MAKE ALL KINDS FOR ALL PURPOSES

124 YONGE ST. TORONTO.

SPECIAL GLASS

FOR GREENHOUSES



Conservatories of The Dale Estate, Brampton, Ont.
Glass supplied by our Toronto Branch

GOOD QUALITY, FLAT, EVEN THICKNESS AND WELL CUT

PILKINGTON BROS.
Limited

Toronto, Montreal, Winnipeg, Vancouver

Mention The Canadian Horticulturist when writing

Henry's Nurseries

PACIFIC COAST GROWN
Garden, Field and Flower Seeds

BULBS FOR FALL PLANTING

Thousands of Fruit and Ornamental Trees, English Hollies, Greenhouse Plants. Grown north of the 49th parallel.

No scale. No damage by fumigation.

¶Reliable varieties at reasonable prices. Fertilizers, Bee Supplies, Spray Pumps, Spraying Material, Cut Flowers, etc. Oldest established nursery on the mainland of British Columbia. Catalogue free.

M. J. Henry's Nurseries
Greenhouses and Seedhouses, Vancouver, B.C.

Mention The Canadian Horticulturist when writing

R. & W. DAVIDSON

9 Virginia Street, GLASGOW

Branches in
LONDON, LIVERPOOL, MANCHESTER
BRISTOL, NEWCASTLE and LEITH

Invite Consignments Apples

For Best Family Trade. Boxes Preferred

For Particulars Refer to Editor of this Journal.

Mention The Canadian Horticulturist when writing

Fruit and Poultry

A GOOD COMBINATION
EACH HELPS THE OTHER

Canadian Horticulturist - - - - $ .50
Canadian Poultry Review - - - - .50
$1.00

OUR SPECIAL RATE FOR THE TWO FOR ONE FULL YEAR ONLY, .80

Address all orders at this special rate to

THE CANADIAN HORTICULTURIST

DO IT NOW. TORONTO, ONT.

Apples for Export

REPRESENTING

THOS. RUSSELL, Glasgow

J. & H. GOODWIN
Manchester, Liverpool and Hull

¶ Will be pleased to keep you advised regarding the condition of the European markets.
¶ If you have any apples for export call or write

Fred. Barker, 25 Church St., Toronto, Can.

Mention THE CANADIAN HORTICULTURIST

To Fruit Growers

¶We require from now until the end of the season a regular sending of colored apples, also Greenings and Russets. Highest prices realized for best goods. References furnished on application. Please write for all information required to

W. PALEY & SON

Established 1849

Kirkgate Market, Leeds, England

Mention The Horticulturist when writing

which requires that all nursery stock entering the province must be inspected at Vancouver, which causes extra freight charges and much relay in delivering. In some cases, eastern grown stock consigned to the Kootenay country is leafed out before it arrives at its destination; as a result, it often fails to live.

Competition is what the planters invite; not a law that shuts such out. The effect of the present law in British Columbia is to shut out the nurserymen of Ontario and other eastern parts of Canada, and to divert the trade into Oregon and Washington. The nurseries of British Columbia are yet too young to fully supply the demand.

The fruit growers' associations of Canada should use their influence to have an inspection and fumigation station established at Revelstoke. Only a few trees arrived here this spring from Ontario, while two cars came from the United States. Revelstoke is on the main line of the C.P.R. and is the gateway to the upper country of British Columbia. It has railway and steamship connections for all points. Nursery stock for this large section of country is distributed from Revelstoke. The place to fumigate and inspect same is at Revelstoke.—R. Tapping, Revelstoke, B.C.

Steadily Growing

The circulation of THE CANADIAN HORTICULTURIST has been steadily forging ahead. Each month, we add several hundred new subscribers to our lists. This is evidence of a good healthy circulation. Recently, we have been receiving many subscriptions from our agents. The paid circulation of THE CANADIAN HORTICULTURIST for October, was considerably in excess of 7,300 copies. Besides this we are sending out several thousand extra copies to names supplied us by our readers. If you are not already a subscriber to THE CANADIAN HORTICULTURIST, we trust to have your full support by receiving your subscription.

THE CANADIAN HORTICULTURIST is Canada's only horticultural paper, and is published monthly. We will accept one renewal subscription, and two new subscriptions for $1. As a special inducement to our old subscribers, we will give a three years' subscription for $1.20.

By sending us a club of new subscriptions, you not only benefit THE CANADIAN HORTICULTURIST, but we in return give you a larger and better paper. You will also be giving your friends the opportunity of subscribing to the only fruit, flower and vegetable paper published in Canada, and for Canadians. Start a club of new subscribers among your friends. Three new subscriptions accepted for $1.

The Department of Agriculture at Ottawa recently published a bulletin on bush fruits by W. T. Macoun, horticulturist at the Central Experimental Farm, Ottawa. It is exceedingly well prepared. It discusses in a practical and thorough way the culture of the currant, gooseberry, raspberry, and blackberry, and outlines the experiments with the fruits conducted at the C.E.F., and the results.

BOOKS FREE

For TWO new subscriptions to The Canadian Horticulturist, we will send free.

Book	Author	Price
Asparagus	F. M. Heximer	50c.
Practical Fruit Grower	S. T. Maynard	50c.
A. B. C. of Strawberry Culture	Terry & Root	45c.
Spraying Crops	C. M. Weed	50c.
The Beautiful Flower Garden	F. Schuyler Mathews	40c.
Window Flower Garden	Julius Heinrich	50c.
Your Plants	James Sheehan	40c.

—ADDRESS—

The Canadian Horticulturist, Toronto, Canada

The Foster Pottery Co.

LIMITED

MANUFACTURERS OF
Flower Pots
Azalea Pots
Fern and Bulb Pans
Straight Fern Pans
Seed Pans

Send for Price List and Catalogue

Main Street West, Hamilton, Ont.

Mention The Canadian Horticulturist when writing

HOW TO PLAN THE HOME GROUNDS

By S. Parsons

For three new subscriptions to THE CANADIAN HORTICULTURIST, we will send the above book free, to any of our readers. The purpose of this book is to teach land owners and home builders how to beautify their grounds. The laying out and construction of roads and paths, lawns and flower gardens are fully treated upon, while the lists of the best trees, shrubs, hardy herbaceous plants, etc., serve as a valuable guide to the amateur landscape gardener.

The Canadian Horticulturist, Toronto, Ont.

GOES LIKE SIXTY
SELLS LIKE SIXTY
SELLS FOR $65

GILSON
GASOLENE
ENGINE

For Pumping, Cream Separators, Churns, Wash Machines, etc. FREE TRIAL. Ask for catalog—all sizes

GILSON MFG. CO. Ltd. Dept. 104 GUELPH, ONT.

Imperial Bank

OF CANADA

Established 1875

Head Office . Toronto

Capital Authorized, $10,000,000.00
Capital Paid-up, . $4,835,000.00
Rest, - - $4,835,000.00

Savings Department at all Branches

Interest allowed on deposits of One Dollar and upwards and credited four times a year.

Baby Rambler

Ever-blooming Crimson Dwarf. Think of roses every day from June until frost out of doors.

Plant Only The Best

Fruit and Ornamental Trees, Shrubs Roses, Berry Plants, Grapevines, Etc.

Look at Prices in Our Catalogue. We Ship Direct to YOU. No Agents

¶Our prices and stock are O.K. Write us. Now is the best time to ORDER for FALL PLANTING, while we are in full supply. ¶Quality Governs at the Central Nurseries. ¶We would appreciate your order. Try us.

27th Year

A. G. HULL & SON, St. Catharines, Ont.

Mention The Canadian Horticulturist when writing.

The Canadian Horticulturist

Vol. XXX DECEMBER, 1907 No. 12

No Danger from San Jose Scale-Infested Fruit

WHEN the last issue of THE CANADIAN HORTICULTURIST was on the press, the newspapers of Ontario and the fruit growers of the Grimsby section of the Niagara district were much excited over the importation of San Jose scale-infested fruit from the United States. The fruit was imported for canning purposes. It came from New Jersey, not from Maryland or Delaware, as was erroneously reported. An inspector was commissioned with instructions to investigate the situation and to take steps to prevent the spread of the pest from the infested fruit to the orchards of the locality. The inspector called a meeting of the fruit growers to discuss the question and to obtain suggestions. Two meetings were held, and a deputation of fruit growers waited upon the Minister of Agriculture at Toronto.

Three carloads of the fruit were badly infested; the others did not have so much scale. The inspector in charge had the cars sealed and notices posted forbidding the removal of the fruit, except under Government supervision. The pears were carried to the factory in sacks, carefully guarded. Before peeling each sack of pears was immersed in boiling water for five minutes. After peeling, the skins were boiled again for fifteen minutes to make sure that none of the scale would escape. The cars and storage buildings were fumigated. All bags, baskets and crates that had contained the pears were burned to ashes, together with all sweepings from both cars and factory. One of the cars was deported. Another, that had been delayed at St. Catharines, was also sent back. All these precautions, while prompted by a commendable object, were unnecessary.

It is practically impossible for San Jose scale to spread by means of infested fruit. Experiments on this continent and in Europe prove this to be so. Not one instance of infestation of scale from this source is known. The leading authorities in Canada and the United States are emphatic in the opinion that there is no danger of dissemination by this means. Further comments on the question appear in the editorial columns of this issue.

In reply to some questions sent by THE CANADIAN HORTICULTURIST to a number of prominent entomologists in Canada and the United States, many interesting and valuable letters have been received. Some of them are published herewith. Others will appear in the January issue. These letters are from men who know.

For Horticultural Societies

The Napanee Horticultural Society was organized twelve years ago, and since its organization, the society has subscribed for THE CANADIAN HORTICULTURIST for its members. Experience has taught us that it is the one publication devoted specially to our interests, and that we would not be doing our duty if we did not place a copy in the hands of each of our members. We have observed the improvement that has taken place in the paper from time to time. The many useful hints given for the benefit of amateur horticulturists are of particular value. What is true of the Napanee society is equally true of every society in the province. I know of no way in which the directors can spend their money so profitably as in subscribing for THE CANADIAN HORTICULTURIST.—W. S. Herrington, President Napanee Horticultural Society, Napanee, Ont.

Prof. Wm. Lochhead, Biologist, Macdonald College, Ste. Anne de Bellevue, Que., contributes the following: "In these days when large quantities of fruit infested with San Jose scale are shipped to markets in all parts of the country, it becomes a matter of much importance whether or not the San Jose scale can be spread by such shipments. Germany and other countries have very stringent quarantine regulations regarding the importation of fruit infested with scale, believing that scale can be spread by infested fruit. The German authorities have failed, however, after many experiments extending over several years, to find a single instance of infestation of scale from such a source. This result is such as we might naturally expect. None of the scales found on fruit shipped for export are mature; the large percentage of them are but half-grown. When scales are dislodged from the skin of the fruit their mouth-parts are usually broken, so that they are incapable of feeding and growing. Should parings of infested fruit be thrown on the rubbish heap or in the back yard it is hardly probable, scarcely possible, that the immature scales will find conditions suitable for their development for three months up to maturity, and the production of living young. The parings soon lose their moisture and become dried up, followed by the death of the young scales.

"Sometimes sparrows and ants, which have an attraction for rubbish heaps, have been accused of being agents for the carrying of the scale to shrubs and trees. To my mind we need fear nothing from this source, as the scales to be carried are not in the active, crawling stage. They are, as I have said, in the immature stage, torn from their resting place, and with a long period of development ahead of them.

"On the other hand, I have sometimes seen the crawling larvæ of the San Jose scale on market fruit that had been picked but a few days. In my judgment there is a possibility in such cases that the scales may be spread to shrubs and trees by such agents as sparrows and ants before the fruit is consumed. I remember a case where a tree became infested with scale that had escaped from baskets piled occasionally at the foot of the tree. This danger of possible infection is referred to in my bulletin, 'The San Jose and Other Scale Insects,' page 21, published in 1900 by the Department of Agriculture, Toronto. However, as soon as the crawling larvæ become fixed and secretes a scale, there is no danger that it will survive after disturbance even if transplanted. Therefore, in long shipments, where the crawl-

ing larvæ have had time to fix themselves, no danger need be feared."

Dr. James Fletcher, Dominion Entomologist, Ottawa: "I have always held that there is no danger from spreading the San Jose scale by means of infested fruit as handled in commerce, and particularly is this the case when the infested fruit is coming in at this time of the year to a canning factory, which is practically in an infested district. I would, however, suggest as a further precaution that the boxes or baskets be kept away from all growing trees."

NO DANGER OF SPREAD

Dr. Charles J. S. Bethune, Professor of Entomology, O.A.C., Guelph: "I do not think that there is any danger of spreading the San Jose scale by means of infested fruits which are imported for canning purposes. No doubt, some of the scales are alive when the fruit reaches Grimsby, but as soon as the skin is pared off, it speedily dries and the insects are deprived of their food and starved to death. I do not know what the canners do with the waste; probably it is fed to pigs or otherwise disposed of. If thrown into heaps or pits, fermentation would soon take place and would destroy any living scales that there happened to be. With very little care as regards the disposal of the waste material, there should be no danger of spreading the scale. At this time of year they would not be moving at all, and it is extremely improbable that any of them would reach a fruit tree."

Prof. T. B. Symons, State Entomologist for Maryland: "In regards to the distribution of the San Jose scale by infested fruit, would state that I do not consider that there is a remote possibility of the pest being disseminated in this manner under the ordinaty means of moving or transportation of fruit."

Dr. L. O. Howard, Chief, Bureau of Entomology, Washington, D.C.: "There has been from time to time more or less agitation in regard to the possible introduction of the San Jose scale into localities on imported fruit. Although this bureau has kept in close touch with the San Jose scale situation since the introduction of this insect into the east, we have never learned of an instance where the scale has been so established.

"You will recall that fruit, infested with the insect, was shipped from California to the east for many years before its actual introduction occurred by means of infested nursery stock. Fruit is eaten in such places and the parings and waste material are disposed of in such a way that it would be very exceptional indeed for such fruit, or the young scale that might hatch on them, to gain access to trees on which the scale could make lodgment. While it is possible that such could occur, the conditions necessary are such as to render it extremely improbable. In the instance of importation of San Jose scale-infested pears for canning purposes, I would have no uneasiness whatever that the scale might become thus established."

Mr. H. O. Houghton, Entomologist, Agricultural Experiment Station, Newark, Del.: "There is very little danger of increasing the distribution of the San Jose scale by means of infested fruit; and this should be especially true in the case you mention, where fruit is shipped into a cold country like Canada in the fall of the year. I have yet to know of the first instance where it has been definitely determined that the distribution of this pest has been increased by means of infested fruits."

Prof. John B. Smith, Agricultural Experiment Station, New Brunswick, N.J.: "Under ordinary circumstances, I do not think that there is the slightest danger of spread of the San Jose scale from infested fruit. In the particular case mentioned by you, it all depends upon circumstances. If the cannery is not near a fruit orchard and if the refuse, peelings, and so forth, from the pears are not taken out into an orchard and dumped around the trees, I cannot see any conceivable chance of infestation. At this season of the year the scale is not ordinarily active. On fruit, in a warm place, there might be some breeding. In the open, not one out of 1,000,000 larvæ would stand the slightest chance of getting upon a tree in condition to reach a stage that would enable it to pass the winter. It would be almost impossible to infest trees at this season of the year from fruit parings even by taking the greatest care to insure that result. Any ordinary care in the disposition of the fruit would absolutely bar the danger."

NO RECORD OF INFESTATION

Prof. M. V. Slingerland, of Cornell University: "I have said many times in print and in public that the danger of disseminating the San Jose scale by means of infested fruit is very slight. There is scarcely one chance in 10,000 that a new infestation by this pest will be accomplished by the introduction of infested fruit only. So far as I know, there is no authentic record of such a new infestation ever having been brought about by infested fruits. One can easily conceive, however, how it might be accomplished in the following manner: If some of the scales on the fruits were mature and young lice were being born, and such a fruit were placed in a tree, some of the young lice might crawl from the fruit on to the bark and establish themselves. It has been suggested that the peelings from such infested fruits, if thrown near trees, might easily infest them. If recently-born, crawling lice were on such peelings, which were thrown so that they touched the bark of the tree, it, of course, would be possible for some of the young lice to get on to the bark of the tree. While, therefore, it is possible to infest trees by means of infested fruit, there is really very little danger of the San Jose scale being disseminated by this means. The insect is now very widespread all through the United States and Canada, and is constantly appearing in new localities where young orchards are being set. In spite of the precautions of nurserymen and inspectors, even when they claim to fumigate their stock thoroughly, the scale is being shipped into new localities constantly."

ENTIRELY IMPOSSIBLE

The Economic Zoologist for Pennsylvania, Mr. H. A. Surface, M.Sc., discusses the question as follows: "I take pleasure in replying at once to your letter, asking if in my opinion the San Jose scale can be disseminated on pears or other ripe fruits shipped for canning purposes or for other purposes. After a careful consideration of this subject, extending through a period of six years, and after having made experiments along this line and reading all literature possible upon the subject, I am firmly convinced that it is entirely impossible to disseminate San Jose scale upon fruits. I conscientiously believe that it is absolutely impossible to spread scale by such means. Laws providing for the destruction of all infested fruits are unjust both to producers and consumers as well as shippers, and are based upon ignorance of practical and important scientific facts in nature. While the San Jose scale does live upon green fruit, it either dies or entirely ceases to reproduce when the fruits commence to ripen. It is well known that after it is once fixed it can never free itself and fix again. Thus, the individual specimen found upon fruit could not by any possible means be carried to other fruits or trees and continue to live, and the only possibility of such spread would be by the very young (less than two days old) insects produced by the parent and disseminated after arrival at their destination. As there is no reproduction by the San Jose scale upon ripe fruits, there is no possibility of this contingency. I wish that all entomologists and horticulturists would aid in emphasizing this important point. I am certain that no man can prove to me anything different from what I have heard written. *These statements are positive* and I risk my *scientific reputation* should I make an error in discussing a thing so important."

Some of the Delegates and Speakers at the Recent Convention of the Ontario Fruit Growers' Association in Toronto

For the names of the persons numbered see page 305.

Three Questions on Fruit Culture*

Prof. G. Reynaud, La Trappe, Que.

I HAVE catalogued nearly all the questions put to me by correspondents on fruit growing, concerning the making of orchards, the planting, size, and so forth. Among all these different questions, three present themselves to me most often. The first of the three is: Who are the people who should plant orchards?

WHO SHOULD PLANT ORCHARDS?

The reply is simple—everyone; that is to say, all those who own more or less land. One should not see in this province farms without orchards; if not as the principal undertaking, at least as the first accessory, and the most beautiful adornment. It is not necessary to demonstrate that the apple thrives well in our country. Without doubt, there are districts in which they do not thrive perfectly, but there is room to hope, thanks to the persistent efforts of the pomologists, that these districts shall become apple-growing districts, if not with already existing varieties, at least with others which may be obtained and which would thrive there. It is recognized everywhere that by the cultivating of the soil, we are able, in a certain degree, to help vegetation, so that the wood ripens itself before the greatest colds and thus diminishes the havoc caused by our rigorous climate.

There is not a single farmer, to my mind, who cannot have more or less apple trees on his place. What is more beautiful than the neat, white homestead of the farmer, displaying itself on a dark green ground, picked out with spots of brightest vermillion. It is the orchard which makes the finest adornment to this residence and the passer-by will be captivated, in spite of himself, with such an attractive landscape.

We can, moreover, attribute to the apple an economical part, very real and important. It not only adorns the country, but also it makes those having other duties to love and often to return to the fields. The development of horticulture, the cultivation of fruit, shall be a means of overcoming the exodus to the cities which we deplore so much This would be a good statistic to establish in those districts which are the most depopulated.

If I were a doctor, I would not hesitate to affirm that, from a hygienic point of view, the apple constitutes one of the best foods, and that the father of a family, who procures them for his children during all seasons of the year, will see his children grow in strength and wisdom. Nearly everyone likes apples. It is sufficient to prove this by referring to the systematic plundering of the orchards in the neighborhood of cities and populous towns.

There is a class of people who are able to render fruit-growing a great service by bestowing on it a few crumbs of their superfluous time and money. I make allusion to those of the "liberal professions," those who, following these professions, exercise a considerable and worthy influence amongst others in their vicinity. What could they not do for horticulture? As an example, take that doctor who does not fear to plant amongst the Laurentians to the north of Montreal, at Lac des Seize Iles, an orchard of 500 apple trees. His example should be followed by a large number of others. This, which to-day is the exception, should become the general rule.

The classical colleges should, at the commencement of their studies, inculcate a taste and love for this branch of knowledge. Many of our classical and commercial colleges do not own the smallest orchard. The treasurer of a college, to whom I made this remark, replied that they had already tried the planting of apple trees, but that the plundering of the fruit had discouraged the authorities and that the experiment had not been tried again. I know how this fallacy would appeal to a college treasurer, when he would see the fruit being gathered by those whom it was not intended for. But how the fallacy would be sweetened, if their highest purpose was, in planting the orchard, to give to the students the first notions of

*A portion of a paper read at the summer meeting of the Pomological and Fruit Growing Society of the Province of Quebec.

arboriculture, planting, grafting, pruning, spraying, and so forth. I could dwell longer on this subject and verify the results obtained in certain places.

Finally, the more orchards there are in a parish, the more fruit will be sold. In the single parish of St. Joseph du Lac, bordering on La Trappe, there was nearly $20,000 worth of fruit sold this autumn.

Summer Fruits in Antiseptic Solutions at Ontario Horticultural Exhibition

A part of the exhibit from the Fruit Experiment Station at Burlington, of which Mr. A. W. Peart is manager.

Mulching the Strawberries

W. H. Burke, Three Rivers, Mich.

THE time has gone by when the question "to mulch or not to mulch," need be discussed. Good horticultural practice demands that mulching be done not only as protection from the severe cold of winter, but because, first, alternate freezing and thawing are rendered impossible by mulching, thus preventing the straining and breaking down of the plants; second, mulching keeps the plants dormant, preventing to a degree extra-early blooming and reducing the danger from late spring frosts; third, mulching insures clean berries at harvest time; fourth, mulching retains moisture in the soil at fruiting time, just when the plants require the most ample supply; and, fifth, it gives to the strawberry grower complete assurance that his plants are coming out all right in the spring.

Not only is mulching of great advantage to the strawberry plants, but the soil is benefited beyond estimate by this covering. The mineral substances in the soil, which constitute the feed that nourishes the plants, would be lost in large quantities were the open spaces left to the ravages of wind and rain. The fertility is conserved, the moisture is retained, and the soil enters upon its work in the spring fully equipped to do its part in producing big crops of big red berries. No argument is needed in behalf of a practice that will accomplish all of these desirable results.

What shall be used as mulch? The things pressed into service as mulch are numerous and vastly different, and range from pine cones in the south, where the vines require no covering, to seaweed along the North Atlantic coast where nature is shy of rains and grasses. The most satisfactory mulch we have found is old and somewhat rotted wheat straw, and following in the order of excellence may be named oat and rye straw, shredded corn fodder, thickly sown corn, sorghum pomace and marsh hay. Old leaves are all right to place between the rows, but something having the form of straw should be put over the plants.

The time to apply is in the fall after severe frosts have begun. Up to that time the root development of the strawberry plant continues, and this the grower wishes to encourage, of course. Then the mulch comes on to protect the plants from injury and to insure a healthy spring foliage, which in turn makes certain a vigorous growth of the plant when the gentle rains and warm sunshine of spring return.

Clean up and burn all fallen limbs, and so far as possible reduce the number of hiding places for hibernating insects.

Protect the young orchard against mice and rabbits by wrapping the trunks of the trees with felt paper or veneer.

THE CANADIAN HORTICULTURIST would be pleased to receive letters from readers who have had experience in the making and use of cement posts for vineyards. State how to make and the cost compared with wood.

Mulching One Hundred Acres of Strawberry Plants

This illustrates the manner in which mulching is applied to the 100 acres of strawberry plants on the R.M.Kellogg Company's strawberry plant farms at Three Rivers, Michigan. Hundreds of tons are annually used in this work. Mulching is one of the methods followed to insure perfect plants, and with an annual crop of from 20,000,000 to 25,000,000 plants it is easily to be understood that mulching is considered by this great concern a most important feature of its work.

Brown Rot—Monilia

V. R. Gardner, Macdonald College, Ste. Anne de Bellevue, Quebec

THE disease known as brown rot is among plum diseases what the curculoi is among plum insects—the most serious. It also affects cherries, peaches, apples, pears and a number of fruits. As the name implies, it causes other a brown decay of the fruit. It usually makes its appearance about the time the fruit matures, though often not until after picking. The decay spreads rapidly from the point of infection, especially if the weather, or storage room in the case of stored fruit, is not. Often the entire fruit will be discolored in a few hours after decay has started, though more frequently several days are required. During the hot weather at this season of the year the disease also spreads with great rapidity from one fruit to another. Sometimes the fruit of an entire tree will appear to be perfectly sound one day, and the next nearly every specimen will show signs of decay. The spores, or germs, of the disease gain entrance to the fruit through punctures in the epidermis, made by insects or other agents, and sometimes through the unbroken skin. A sound fruit touching a decaying one is almost sure to be infected.

REMEDIES AND TREATMENT

Most of the decayed fruits fall to the ground, but some shrivel up and remain clinging to the trees. The "mummy" fruits thus formed are a common sight in most plum orchards. As they serve to carry the fungus through the winter and are the chief source of infection for next year's crop, their removal from the trees in the fall materially aids in the control of the disease. As the punctures made by the curculio and other insects are usual points of infection, keeping them under control also helps to hold this disease in check. Some varieties are much more subject to brown rot than others. The susceptibility of the variety to this and other diseases should always be borne in mind in making a selection for planting. In some localities and during some seasons, it is much more prevalent than in others. There are a number of sections otherwise suitable for plum growing where at least the European and Japanese varieties cannot be grown because of its virulence.

SPRAYING WITH BORDEAUX

Outside of these general points to be taken into consideration in dealing with brown rot, there is one specific thing that can be done to control it. Spraying the trees thoroughly with Bordeaux mixture soon after the fruit has set and again about two weeks later, will probably be found the most satisfactory treatment that can be given. Another spray shortly before the fruit ripens, also, is often recommended. If this is given, a weak solution of copper sulphate (one pound to 300 gallons of water) or the copper carbonate of ammonia mixture should be used, as Bordeaux mixture will stain the fruit at that stage of maturity. Another application of Bordeaux mixture shortly before the buds open in the spring has been found beneficial in many cases.

An Experience With Asters

C. M. Bezzo, Berlin, Ontario

THE accompanying photograph illustrates a bed of asters that I grew last year. The spring previous the soil was heavily fertilized for dahlias, and in August the dahlias were mulched with a half-rotted compost of coarse horse manure and sod from which the soil had been shaken. Early in November, after the dahlias had been removed, the ground again received an application of coarse manure, which was dug in. Early in the spring, almost as soon as the frost was out of the ground, the bed was again dug, and the manure, which had been dug in the previous fall, was thoroughly incorporated with the soil.

On May 15, I came to the conclusion that the aster plants which I had started indoors, and which were intended for this bed, were a failure and I planted more seed in one end of the bed, in rows, keeping each shade separate. After the plants were fairly well started, the ground between the rows was kept loose by constant hoeing, and the plants well watered. On June 16, or one month from the time the seed was sown, the plants were large enough to transplant. They were then taken up and the ground again dug. The plants were placed every nine inches, in rows that were twelve inches apart. This is much too close for the proper development of each individual plant, but for effective massing it is about right, although where the growth is sturdy, a few inches further might perhaps be just as effective. Another reason why I think close planting advantageous, is that the branches become interwoven and each plant supports the other, thereby reducing the necessity of staking, and the possibility of the plants being uprooted by the wind.

Great Results in Growing Asters

For the first two or three weeks after transplanting very little perceptible progress was made, but during this time, the plants were throwing out roots and feeders underground. Having completed, or sufficiently advanced, this under-ground work, top growth commenced with great rapidity. The ground was soaked with water almost every evening during hot weather until the plants were large enough to protect their roots from the blazing sun. The surface of the ground was kept loose with a hoe,

until the plants were large enough to render the operation dangerous to themselves. The bed was a mass of glory when, on October 10, 1906, the heavy snowstorm which swept over Western Ontario crushed them to the earth. This experience teaches that successful aster culture depends upon having good seed and rich, mellow soil, well worked and well watered.

Winter Protection for Plants

V. R. Gardner, Macdonald College, Ste. Anne de Bellevue, Quebec

ONE of the first questions asked by people in northern latitudes about a new variety of a fruit-bearing or ornamental plant is: "Is it hardy?" By experience they have come to know that all varieties are not equally hardy and that some are not suited to their severe winters. Although some varieties require no special winter protection, a large number are likely to be destroyed without it; yet many of these half-hardy sorts of both fruits and ornamentals may be made to thrive if only given a little extra care. As the tender varieties are often the best in quality, the subject of winter protection becomes one of considerable importance. At the same time it is a rather difficult subject to discuss. The plant that will need protection in one locality may not need it in another. The method of protection best adapted to a particular plant in one locality may be quite unsatisfactory in a place less than a hundred miles distant.

MULCHING MOST COMMON

Generally speaking, mulching of one kind or another is the one way of protecting half-hardy plants through the winter. Strawberries, asparagus, peonies, and many other herbaceous perennials, are regularly mulched. Grapes, raspberries, blackberries, dewberries, and many ornamental shrubs are first laid down and then mulched; in all cases, the object being to cover the plants with a blanket of some sort, to keep out some of the frost.

With herbaceous plants, straw, leaves or litter of some sort is generally used. These materials can be removed in the spring without much danger of injuring the crowns. Woody plants which can be bent to the ground are usually covered with soil. The depth to mulch of course varies somewhat with different plants and with different conditions. Plants may suffer as much from too deep mulching as from being left exposed. If covered too deeply they may decay in the spring before the mulching is removed. With most plants a mulch a couple of inches deep is usually sufficient. Strawberries should not be covered this deep, except between the rows where the mulching may be thicker.

LAYING DOWN WOODY PLANTS

With woody plants the main difficulty lies in getting them down to the ground. Grapes, raspberries, blackberries, and so forth, which are intended for mulching, should be pruned in the fall so that no more wood than necessary need be covered. In the case of the brambles, all dead canes should be removed and the new ones thinned so as to leave only four or five of the best to each hill. Then by digging away from one side of each plant with a spade and prying from

Eucomis Punctata

the opposite side, the plants may be bent over without great difficulty. Plants laid down in the same direction each year are quite readily handled. If all the plants in a row are bent in one direction and made to lap over each other, less material will be required to cover them.

HANDLING GRAPE VINES

There are several methods of pruning the grape for laying down. One of the most satisfactory is to train an arm out horizontally in each direction from the parent plant, and let vertically trained shoots develop from these arms each year. The arms, being near the ground, can be readily covered in the fall after the canes of the past season's growth have been removed. New shoots are produced each year from spurs on the two arms. Another method of pruning grapes suited to regions where the vines must be laid down in the winter is what is sometimes known as the fan system. According to this system no permanent arm is formed; but instead each year the plant is cut back so as to leave only three or four canes, each one and a half to three feet long, coming from the stem at or below the surface of the ground. These are flexible and can be readily covered. In the spring they are tied to the trellis in a fan-shaped fashion.

PROTECTION AGAINST MICE AND RABBITS

In some sections, considerable injury is done fruit and ornamental trees by mice and rabbits. Care should be taken to prevent litter that is likely to furnish material for nests from accumulating around the trunks of trees. Tree protectors made of wire screen, or wood cut into thin veneer-like sheets and tied around the tree trunks like a collar, are often used to advantage to prevent girdling.

Other methods than these mentioned for protecting plants from severe cold and from rodents are frequently employed. The above are some of the simpler and more common. A little time spent now in preparing our plants for the winter may prevent considerable loss and disappointment.

Canadian Holly

Roderick Cameron, Niagara Falls, Ontario

Canadian holly, *Ilex verticellata*, is a native plant that grows on the borders of swamps and ponds. To see a clump in full fruit with the ground round about covered with snow, is a sight that will never be forgotten by any person that loves plants.

There seems to be both fertile and sterile plants of these. Two kinds are found near each other, one literally covered with scarlet fruit and the other with none.

These plants take kindly to cultivation on damp soil. They love to have their roots covered with water during winter and spring. During summer, however, they seem at home in a dry place like the edge of a dried-up pond.

Eucomis Punctata (spotted).—Flower, green brown; scape, cylindrical; tall, surmounted by a crownlike tuft of leaves, which renders them interesting objects, deserving of cultivation in the outdoor garden. They have proved of sufficient hardiness to survive our winters at Niagara Falls. They are cape bulbous plants of the lily family; handsome foliage, more or less spotted at the base with purple. The illustration shows a plant grown by Mr. Roderick Cameron, Queen Victoria Park, Niagara Falls, Ont. Probably it is the only one that has been flowered in Ontario.

When planning a garden, do not aim to have it like that of any one else. Be original. Produce the unlike.

Practical Pointers on Dahlia Culture

Max Moineau, Toronto

MY method of culture has given good results, and yet I feel that I know very little about the nature of this remarkable flower. In developing my "Sunburst" dahlia, I began with a very

1. Sunburst—A Show Dahlia

Chrome yellow with coppery bronze centre. Diameter, 4⅞ inches.

ordinary flower of the show type, whose color, a deep chrome yellow, with a coppery bronze centre, appealed to me as one worthy of attention. It was given me, and was not named. In size it measured three and one-eighth inches in diameter, was of perfect form, and opened out like a ball, the ray flowers reflecting to the stem. It looked like an overgrown pompon.

The next year I selected the largest, healthiest and most promising tuber, planted it six inches deep in rich soil, that was half sand and half clay, with bone meal thoroughly mixed through it. The bush grew to be thirty-seven inches high, with a strong stalk. After the buds began to form, I gave the plant a mulch of well-rotted stable manure, and covered this with about an inch of sand. The first bloom measured four and seven-eighths inches in diameter, and was of good form, with a coppery-bronze centre. See illustration No. 1. The second bloom measured five and one-eighth inches in diameter, was of even better form, but had a centre like dull brass. See illustration No. 2. After this my plant met with misfortune. One of my children, while playing near it, fell against it and broke down the greater part of the bush. It bloomed afterwards, but from a smaller side branch, and the flowers were not so large, although of as good form, but all with a coppery centre.

The result of the above experiment led me to believe that by selecting the best tubers from year to year, planting them horizontally six inches deep, in a rich soil, half clay and half sand, with bone meal and wood ashes thoroughly mixed through it, and only one tuber in a hill, the hills being from three to four feet apart, there would be splendid results. Nor was I disappointed. This method gives a good bush, fine bloom, and better tubers. Putting a whole cluster of tubers in one hill is wrong. After they have sprouted sufficiently to show an eye, separate them carefully with a sharp knife, and select the best for planting. Sprouting should be promoted in the cellar, by wrapping the cluster of tubers in moss from the florist's, and keeping this damp until eyes appear.

QUALITY BETTER THAN QUANTITY

It is better to have quality than quantity. When starting in the cellar, I place each carefully-selected tuber in

2. Another View of Sunburst

The petals, open back to stem, make a ball shape.

a separate box, the earth the same as in my garden, half clay and half sand, with bone meal and wood ashes, in small quantities, thoroughly mixed through it. The boxes are made so that they can be easily taken apart. When planting time comes, I carefully place the contents of box in the hill, disturbing the tubers as little as possible. This prevents the breaking of the long, slender roots of the tuber, and insures a much better growth.

In Canada, this plant should not be started too early. Keep the tubers dormant until after the first of May, then start them in the cellar, setting them out in the garden about the first of June. The dahlia is in reality a fall plant, and it flowers best after the hot season. I never expect a good fall bloom from a plant that has been started early in the cellar, forced to eight or ten inches in height, then transferred to the garden as soon as the weather will permit. Among amateurs it seems to be quite an achievement to produce the first bloom of the season. For my part, I much prefer producing plants that will be sturdy and prolific through a later season. The result is much more satisfactory in the end, when flowers are scarce.

Having planted your tubers, be careful how you treat them. Remember that nature can do a great deal more for them now than can you. *Do not water them.* Let nature do this. Artificial watering promotes the growth of the bush at the expense of the bloom. If tubers are six, or even eight inches deep, they will keep sufficiently moist between showers, unless in very dry weather, then give them an occasional *soaking.* Keep the earth about stalks well stirred up, so that it will not bake, and pluck out all suckers and weeds. I usually clip out the lower flower shoots, which never do well, that the strength expended in their development may go to the better part of the plant.

THE ORIGIN OF NEW VARIETIES

Propagating dahlias from seeds requires considerable care and patience. Having let one of your favorites go to seed on the bush, gather the seed before frost, and keep dry until the middle of March. Then plant in flats in the cellar, as you would aster seeds. When the second or third set of leaves have formed,

3. Mrs. Roosevelt—the True Type

transplant about three inches apart to give room. When weather will permit, transfer plants to the hotbed or cold frame. As soon as all danger of frost has passed, plant out in the garden, and

treat as if grown from tubers. They will bloom the first season. The tubers of these plants will do better the following year. In this way new varieties are originated.

4. Mrs. Roosevelt—A Sport

I have stated that flowers will sport on the same bush. As an example I give two illustrations, No. 3 and No. 4. These are "Mrs. Roosevelt," both grown on the same bush, from the same tuber, but from different branches. No. 3 is the true type, No. 4 the sport. It is believed that this variety of dahlia is an improvement over "Grand Duke Alexis" and was originated from that plant. If so, then this sport partly answers the query: "Do dahlias revert?" Anyone familiar with "Grand Duke Alexis," will notice in this sport of "Mrs. Roosevelt" the resemblance to its progenitor. It was certainly the most beautiful flower from this bush during the whole season. Its color was a delicate rose pink, with a rich orange centre, over which a few petals curled gracefully. It was much admired by all who beheld it.

A fine specimen of "Clifford W. Bruton" is represented by illustration No. 5. It is a large yellow, decorative dahlia, that measured five and six-eighths inches. The bush it grew upon is nearly six feet tall, and spreads over an area of nearly seven feet. This flower was picked without any special selection.

PROPAGATING FROM SLIPS

Among professionals the propagation of dahlias from slips is quite common. Slips are made from early shoots. These should be of the very thinnest, and taken from tubers that have been started in January, either in the hot-house, or in the cellar, if there is sufficient light. When the third set of leaves have formed, cut the shoots from the tubers and place in three-inch pots containing sandy loam, being very careful to label slips as you make them. In about three weeks they will take root. Do not be discouraged if these slips wilt at first. I have had them apparently die, and finally send up a splendid shoot. Remove to hot-bed as soon as weather will permit, and transplant in garden, only after carefully hardening out, as soon as all danger of frost has passed, say about the middle of May. They will bloom as if grown from tubers.

FEEDING

Your dahlia bed should always be fertilized in the fall. After the tubers have been dug, work in large quantities of well-rotted cow manure, digging the bed over several times before the earth has frozen. Early in the growing season a top dressing of pure bone meal four parts, to nitrate of soda one part, gives splendid results, but

5. Clifford W. Bruton

Deep yellow, decorative. Size, 5⅜ inches.

do not apply this until buds have begun to form. If, after a good bloom, the flowers appear to degenerate in size and quality, mulch broadcast with the bone meal and nitrate of soda composition, to promote a better bloom. Like the peony, the dahlia is a great feeder, but remember that too much feeding before the buds begin to form promotes the growth of the bush at the expense of the bloom.

Amateurs should aim to have flower beds of a pleasing but simple shape, not elaborate in design.

The value of rural improvement is recognized by all men who observe. It has an effect on the home and on the travelling public. It increases the value of the farms that are adjacent to or that form part of the improvement.

Gaillardia—Blanket Flower

The gaillardias are a genus of great importance in the flower garden, including, as they do, some of the showiest flowers, valuable for their long duration on the plants and as cut flowers. Variety *aristata* and several others are the types, all natives of North America, from which have been raised a number of beautiful hybrids, producing flowers from two to four inches in diameter. Variety *grandiflora* is probably the best and should be found in every collection.

If the seeds are sown in February, the plants raised will bloom as well as wintered-over plants. They may also be raised from cuttings in the fall. For effect, plant in a bold clump by themselves.

Kniphofia—Flame Flower

Roderick Cameron, Niagara Falls, Ont.

Red-Hot Poker or Torch Lily are other names for this flower. They are natives of South Africa. They belong to the lily family, of which there are about a dozen varieties in cultivation. All bear a strong resemblance to each other. The variety "Pfritzerie" is probably the best on account of its continual blooming habit and bright flame color. It blooms during August, September, and October. The photograph reproduced here is of this variety. I have counted as many as thirty-five spikes on one of these plants at a time. The plants are smaller than the others that I am acquainted with and the heads are shorter. One of the tallest is "Noble's." It is truly a noble plant, well worthy of the name.

They all like a deep, damp, porous

Kniphofia Aloides

soil. At Niagara Falls they are hardy, but I would advise gardeners in other sections to take up the roots, store in boxes, and place in a cool cellar. They may be planted outside in the spring. Variety "Maria" is the hardiest of this class and should prove so in many places in Ontario.

Delegates and Others in Attendance at Convention of Ontario Horticultural Association

For names of persons numbered see page 305.

What Amateurs Can Do this Month

THE custom of having a Christmas tree is so universally observed that Christmas would not be Christmas without it. Various kinds of conifers are used, such as white cedar, juniper, spruce, balsam and hemlock. Of our native evergreens, the spruce and balsam make the best Christmas trees, as their branches are regular and formal. These may be secured in the woods or bought from florists. Let every home have a Christmas tree.

No scheme of Christmas decoration is complete without the use of one or more kinds of red berries. Of these, the holly is the most important. The English holly is more attractive than the American species, but it is not used so largely. The holly used in this country comes mostly from the southern states. The winterberry, a closely allied species, is found in our swamps and low grounds. Sprays of the common barberry also may be used for Christmas decorations.

If you want to select Christmas presents that will be appreciated not only on account of their immediate beauty and worth, but also for their lasting qualities, why not select growing plants? Some persons give cut flowers for Christmas presents, but growing plants are much more satisfactory. If these are decided upon, make your selection early. Do not wait until the best plants are gone. When buying, do not purchase plants that have every flower expanded. A few open flowers is sufficient, the remaining buds will expand in due time, and the interest will be prolonged. There are many plants suitable for presents, such as Gloire de Lorraine begonias, Jerusalem cherry, cyclamen, genistas, bulbs in variety, primulas, azaleas, poinsettias, Baby Rambler roses, and many others.

If you are sending plants to friends, and do not have them packed by a florist, be careful in performing the work. Plants like Jerusalem cherry and azaleas should have the branches drawn in towards the centre and secured by a string placed around the outside of the plant. Wrap them by first covering the top of the plant with tissue paper, which may be held in place by a string. Then roll the plant in a single or double sheet of cotton batting. Outside of this comes the wrapping paper. The quantity and thickness of wrapping paper will depend upon the distance that the plant is being sent. Probably it is the safest to first wrap in three or four thicknesses of newspaper and clean manilla paper on the outside. Include the pots in the wrapping.

Books on horticulture make acceptable gifts. Every amateur gardener is interested in reading books on gardening. For a list of good ones, write for the book catalogue that is issued by THE CANADIAN HORTICULTURIST.

When sending Christmas presents, in most cases, the appearance of the gift will be enhanced by the use of galax leaves. Put a leaf in every Christmas package. You can get many of them from your florist for a few cents.

Christmas gifts wrapped in white paper, tied with a narrow silk ribbon or fancy cord, with a small sprig of holly placed in the ends or loops of the bow, and the whole wrapped in heavy paper for transportation, is a common and effective means of preparation.

Fruits are indispensable factors in dressing a Christmas tree, filling stockings or decorating the dining table. It has long been the custom to use imported fruits such as oranges and Malaga grapes for these purposes. While these fruits are excellent, there are many native grown fruits that may be selected. Among them, the choicer varieties of pears, such as Anjou;

grapes, such as Vergennes, Salem and Lindley; and apples, like Fameuse, McIntosh Red and Spy.

OUT-OF-DOORS

On pleasant days many odd jobs can be done on the lawn, and in the garden. Saw dead limbs from trees. Wrap and protect tender vines and shrubs. Remove and burn garden rubbish. Examine fruit trees for San Jose scale. Seek eggs of cocoons and insects and destroy them. Clean garden tools and cover the iron work with grease to keep them from rusting.

Pruning fruit trees, bushes and vines may be done at any time during the winter if you think that you will not have time to do the work in early spring. Best results usually are secured in northern climates by pruning at the latter time.

Mulch the newly-planted bulb beds. Use strawy manure or spruce boughs.

Review your garden successes and failures of the past summer. Tell the story in a letter to THE CANADIAN HORTICULTURIST. It will be published for the benefit of others. It matters not whether your garden was large or small, whether your experience was with a hundred plants, rare or common, or with only a single simple geranium, tell the story as it is. Read the experiences with asters and dahlias on other pages of this issue. Have you done similar work with these or other kinds of plant? Send illustrations if you have them. They will be returned at your request.

The Amateur's Greenhouse in December

A. Alexander, Hamilton

THIS is one of the interesting periods of the year for the greenhouse of the amateur. The plants which have been out of doors all summer, many of them resting, are beginning to show their gratitude for the congenial quarters provided for them by pushing out their new foliage, so fresh and green, and perhaps adding their gay coloring to make the house a real beauty spot for its owner to revel in while the blasts of winter are holding high carnival without.

A Private Greenhouse Affords much Pleasure to its Owner

Near the centre stands Mr. A. Alexander, Hamilton, Ont., an enthusiastic horticulturist who has contributed many valuable articles to THE CANADIAN HORTICULTURIST.

The bulbs, especially the narcissus in variety, and the Roman hyacinths will now be pushing upward to the light, especially those planted early in October, and will afford a source of daily interest and pleasure in watching their growth and development. After bulbs commence to grow and the roots are filling the pots, they should never be allowed to get dry.

This matter of watering plants growing in the dwelling or greenhouse, is a most important one. How often we hear the question asked: "How often should I water my plants?" The best answer to this is: "When they require it." I always tell my questioners to use their knuckles. I tell them to tap the pot with their knuckles or a piece of wood. If it gives a clear ringing sound, then water is certainly needed, but if dull and heavy, sufficient has been given. When watering, do it thoroughly; never water in driblets. The question of watering the plants in a small greenhouse is a most important one during this and the following two or three months.

Of course, it is taken for granted that the plants that have been brought in from the outside have been repotted into clean pots and fresh soil, and that those lifted from the borders, such as geraniums and other suitable plants, have been "cut back" and carefully potted in pots, scrubbed clean inside and out. We have to remember that plants that have been standing outside or growing in the borders have exhausted the soil, especially those in pots, for in the copious summer watering, nearly all the plant food has been washed out. The thorough drainage of the pot should be attended to.

Those who grow freezias in their greenhouse, and who does not? should place around the edge of each pot four or five neat stakes six or nine inches in length, with green thread or fine cord or wire at intervals of three inches around the stakes. If this is done when the plants are a few inches above the edge of the pots, it prevents the plants swaying over and getting unsightly. Good bulbs of all kinds are so cheap now and in such variety, that a constant succession may be kept up for months.

The aphis or green fly is one of the enemies of the amateur greenhouse. I have found the extract of tobacco, vaporized in a small copper dish over a spirit lamp, the handiest and most effective remedy, and it does not injure the bloom as the ordinary smoking by burning tobacco stems does.

Too high a temperature should be avoided. It should not get below forty degrees. A temperature of forty-five degrees is high enough for the night at this time of year, while it may have a day temperature of fifty-five or sixty degrees. Of course, if tenderer plants, known as stove or hot-house plants, are grown, then a temperature ten degrees higher would be required.

Best effects in flower combinations are secured by planting each kind by itself. Where contrast is desired, however, two or three colors may be used, provided they are such as harmonize well.

The Marketing of Vegetables*

Frank Williams, Ottawa South, Ontario

THE more we study the vegetable business the more complicated it appears to become. The merchant only requires good judgment in buying his goods, attention to the wants of his customers, a reasonable profit, and fair dealing, to make his business a success. The manufacturer works up the raw materials by well-defined rules and patterns. The miner seldom meets with new and unknown difficulties. The whole list of our commerce runs pretty much the same way. On the other hand, the successful vegetable grower has the problem of what to grow and how to grow it, which involves details innumerable, and when the goods are ready for market has to rely solely on his good judgment for what he may realize for his product. The following are some of the reasons for this:

A Large Greenhouse on the Premises of Mr. Williams at Ottawa

In the first place, as nature never repeats herself, no two growers will have just the same size and quality of goods; hence, a variety of prices for the same lines on any given day of the season. Secondly, the manner in which these lines are offered for sale vary according to the fancy or judgment of the individual grower or salesman. Thinking over this problem of the marketing of our crops our conclusion is that there is a good work lying at the door of this association along these lines. Grading of quality, uniformity and attractiveness of package whether bunch or box, cleanliness of goods and package, together with a respectable outfit and driver, are just as necessary to success in our business as any other.

GRADING OF QUALITY

The poor man cannot always afford to pay for fancy quality, and the rich man will not pay for poor quality. Then, why not grade the goods and get their true value? We believe that in some cases it would pay to throw away the few small inferior ones and not disgrace the bunch or box. I had almost said "yourself," for does it not seem dishonest to try to sell such stuff at the price of a good article? It will be a surprise to most growers when they set this cull stuff to one side to see how small a portion of the crop it is. Generally, the better quality and less bulk will bring more money than the total crop ungraded.

ATTRACTIVENESS OF PACKAGE

Oftentimes boxes several years old that have been used for onions, potatoes, roots, and other work around the garden, may be seen filled with asparagus, snap beans, tomatoes, cauliflower, and so forth. The grower does not realize that the fastidious customer is generally the one who will pay the price, and that by so doing he is losing many times over in a season the cost of a clean and attractive package.

UNIFORMITY OF PACKAGE

Uniformity of package will always give the line a better appearance when offered for sale, and will be found to find favor with the purchaser when giving his order as well as help the grower to keep a record of his crop.

ADVERTISING

Does it not seem strange that while all other lines of business advertise their goods the vegetable grower has nothing to say for himself or his product? This should not be so. Our business is worthy of better treatment. If you have a good thing let the consuming public know it, and where it comes from. If it is a box or basket, stamp your name

An Excellent Display of Onions shown at last Canadian National Exhibition

The onions at the recent Ontario Horticultural Exhibition were even better than these.

*One of the papers read at the convention of the Ontario Vegetable Growers' Association last month.

and address plainly and prominently on the package. If it is a bunch, tie a label or tag to it. If the goods are right the consumer will want more of them and will soon insist on having yours and yours only. Not only this, but they will also be sure to tell their friends the satisfaction they have had since they have been getting your labelled goods of first quality and even grade.

These suggestions when followed will be found helpful in many other ways. They will have a tendency to bring the business into better system, will help the grower to estimate the value of each crop, and will be found a strong incentive to grow the best and nothing but the best. They will stimulate the quality, so often lacking, of pride in the business, the first and best God ever gave to man.

Wake up fellow-gardeners to your opportunities! Along these lines, your business will increase and success will follow.

Forcing Rhubarb with Ether

J. Eaton Howitt, M.S., Ontario Agricultural College, Guelph

RHUBARB is a plant that is being forced for winter use more and more every year. The method of forcing is very simple. Good, strong, thoroughly established, three or four-year-old clumps are dug in the fall. These are stored in boxes or cold frames until required for use. They are then taken into the forcing house and placed close together in boxes or in beds underneath the benches. Soil is thoroughly packed between the clumps and a covering of from two to six inches of soil placed over them. The temperature of the house is kept between fifty and sixty degrees Fahrenheit and water applied when necessary. In about four or five weeks' time, the rhubarb is ready to cut.

Rhubarb—Unetherized shoots on left, Etherized on right

EXPERIMENTS WITH ETHER

In the experiments at Cornell on the forcing of rhubarb by the use of ether, the usual methods of culture were practised. The experiment was started on December 26, when three clumps of etherized and three clumps of unetherized rhubarb were placed in boxes in a dark mushroom house. Care was taken to have both lots as nearly the same weight as possible. The effect of the ether was very pronounced, the shoots of the etherized clumps being ready to cut fully five days before those of the unetherized clumps. Not only were the shoots of the etherized clumps earlier than those of the unetherized, but there were also a great many more of them. Four cuttings were taken from these two lots of rhubarb, and a comparison made between the weights of the edible stalks produced by the etherized and unetherized lots. The results were decidedly in favor of the etherized lots.

The first cutting was made on January 20, when the etherized clumps yielded three pounds, one ounce of edible stalks and the unetherized clumps one pound, six ounces. At the second cutting, which was made on January 26, the etherized lot yielded two pounds, nine ounces, and the unetherized two pounds, two and a half ounces. The third cutting, made on February 3, showed no gain in favor of the etherized lot as both lots yielded one pound, thirteen ounces. In the fourth cutting, made on February 10, there was once more a slight increase in yield in favor of the etherized lot, it yielding one pound, ten ounces, and the unetherized lot one pound, seven and a half ounces. There was, therefore, from the four cuttings, a total gain of two pounds, four ounces in favor of the etherized lot, which is equal to an increase of about thirty-three per cent. due to etherization.

COST OF ETHERIZATION

The expense of etherization is not as much as might be expected. The initial cost for a thoroughly air-tight box need not be great. Any well-made box may be used if the cracks are covered over with felt paper and the cover made to fit as closely as possible. Such a box can be made by any handy man at a very slight cost. Commercial sulphuric ether, such as is required for etherization, costs about seventy-five cents a pound, which quantity is sufficient to etherize thirty good-sized clumps of rhubarb. Thus the cost of the process is so little that it is more than covered by the five days' gain in time, which means a considerable saving of labor, and often a better price for the rhubarb. The extra quantity of rhubarb produced by etherization is clear gain.

Asparagus and Ginseng

Last summer I cut the foliage of my asparagus bed for use in floral work. Will this influence the crop next year? Give some information about ginseng?—E.G.F., Shediae, N.B.

The condition of the roots of your asparagus will depend largely upon the quantity of foliage that was removed during summer. After cutting in spring, the plants should be allowed to grow all summer and in fall until the tops die down. This is necessary so that large quantities of plant food may be stored in the roots for use next spring. When a portion of the tops is removed during summer, it disturbs the equilibrium between top and root, and lessens the amount of food that will be stored.

Ginseng is to the Chinese more than quinine or any other drug is to America. It commands a high price in China. While not particularly difficult to grow, it requires some care in protecting it and considerable patience before the crop can be harvested. No returns can be expected from a plantation until it is three or four years old. Write Mr. W. T. Macoun, horticulturist at the Central Experimental Farm, Ottawa, for further details.

In solid benches the board bottom is more desirable than that of tile, as it forces the crops best. Tile bottoms are too quickly dried out.

The leek is closely allied to the onion, which it resembles in flavor. It does not form a bulb, but a straight bunch of leaves that are used almost entirely in a fresh or uncooked condition.

OUR QUESTION AND ANSWER DEPARTMENT

Readers of The Horticulturist are Invited to Submit Questions on any Phase of Horticultural Work

Methods of Grafting

How many methods of grafting are practised and how do they differ from each other?—I.T., Canning, N.S.

There are scores of different methods in use in this country and in Europe, but only four or five are common. These are, in brief, as follows: 1. Whip or tongue-grafting—employed only upon small stacks and usually for root grafting; 2. Splice-grafting—a simple form, also adapted to small shoots; it consists in cutting each part diagonally and placing them together. 3. Saddle-grafting—stack made wedge-shape, scion split and slipped over it. 4. Side or veneer-grafting—stack cut on side diagonally beneath the bark and wedge-shaped scion inserted. 5. Cleft-grafting—stack split and scion made wedge-shape to fit.

Evaporation of Moisture

To settle a dispute, will you please state whether or not deciduous trees lose moisture during the winter?—S. L. Jackson, Perth, Ont.

Yes, deciduous trees lose moisture in winter. The evaporation takes place through the bark, but only to a slight extent, when compared to the transpiration of summer. It is most active from the twigs and small branches of the tree tops, especially when the air surrounding the twig is dry.

Paris Green

Kindly give some information regarding the chemistry of Paris green, with the tests for purity.—T. M. Digby, N.S.

Chemically speaking, Paris green is an aceto-arsenite, prepared by boiling arsenic trioxide with copper acetate. It contains from fifty to sixty per cent. of arsenic and is very insoluble in water. A number of impure Paris greens are offered for sale, such as the following: 1. A bogus Paris green, being merely a mixture of chalk or gypsum, properly colored. This contains absolutely no poison, and is useless. 2. An adulterated Paris green, which is a mixture and chalk, flour, gypsum, and a little Paris green. This contains a little poison, but cannot be relied upon. 3. A low grade Paris green, that contains some free arsenic, sometimes as much as fifteen to twenty per cent.; as a consequence, it is very dangerous to use on tender foliage.

There are a number of simple tests for determining the purity of Paris green. For determining adulteration, the ammonia test is used. Pure Paris green is entirely soluble in ammonia, and produces a greenish solution. Noting a difference in the form of particles is another test. On a piece of glass, place a small quantity of Paris green and tap the glass gently, holding it in an oblique position. As the particles of Paris green are spherical, they will roll very readily when the glass is tapped, and the impurities are left behind. Another test is performed with a microscope. If the Paris green is pure, it will contain nothing but round, green-colored particles.

Mulching Roses

Is it advisable to put a mulch around rose bushes in winter?—W. G., Smith's Falls, Ont.

A fairly heavy mulching of manure will cause the roses to come through the winter in much better shape than if they are left bare. Put on enough so that when it settles there will be a five or six inch mulch. Do not apply it until after the ground has frozen.

Fall Work with Roses

Can roses be planted in fall?—R. W., Essex, Ont.

In some localities, roses may be planted in fall. Do not plant later than the first week in November. Prepare the bed in some suitable place. Roses like plenty of light and air. A soil not too rich but rather clayey is preferred, although any good soil will answer. If the plants are wilted when they come, soak them, wrapping paper and all for several hours in warm water. When planting, spread out the roots and set the plant a little deeper in the ground than it was before. See that the soil is pressed well around the roots. Press with the foot to make sure that the roots and soil come in close contact. If cool or windy when planting, give some protection. During the winter, a protection of dry leaves or straw, held by something to keep the wind from blowing it away, will answer.

Older plants can be bent down to the ground or to within a few inches of it, and fastened there to stakes, and then cover with leaves, straw or other litter, and a board or two placed on top of it to keep the cover from blowing away. They may be protected, also, simply by placing straw around them to a depth of about six inches. Tender varieties must be bent down, however, or if left upright completely covered with straw after the wood is ripened and before heavy frosts come.

Vitality of Seeds

What conditions aid in the preservation of vitality in seeds?—A.M., St. Hyacinthe, Que.

No general rule can be given for the preservation of vitality. One must endeavor to follow the laws of nature, but not strictly. Cultivated plants have long been removed from natural conditions and must be treated in accordance with this fact. The seeds of conifers must be preserved in the cones, corn on the cob, legumes in the pod, and so forth. Most tree seeds are preserved by stratification; some others, by drying and storing in a dry, cool room. To preserve vitality in seed, we must have the conditions that are required for that particular kind uniform, avoiding extremes of every nature, especially in the case of those seeds whose vitality is impaired by excessive moisture.

Notes and Comments

Keep the bearing wood of grape vines as near the main trunk as possible.

The small onions picked from this season's crop may be used as sets next spring.

One of the chief objects of pruning is to provide good, healthy, and not crowded, foliage during the growing season.

Scallion onions usually are due to the planting of poorly selected seed or immature bulbs, but sometimes they are difficult to account for.

One-fourth of an acre planted to small fruits and properly cared for will supply an average family throughout the season, but the land must be reasonably rich and kept in a good condition by thorough cultivation.

Bulbs for spring flowering should be planted in fall and not in the spring, as was stated erroneously in the report of Mr. R. B. Whyte's address before The Toronto Horticultural Society that was published in the November issue.

The diagram that appeared in the November number of THE CANADIAN HORTICULTURIST, representing an arrangement of plants for a hardy border, is well worth careful study. Amateurs who cannot afford the time and space for such an elaborate arrangement can make a selection, from the plants mentioned, to suit borders of any size or pretensions.

The Canadian Horticulturist

Published by The Horticultural Publishing Company, Limited

The Only Horticultural Magazine in the Dominion

Official Organ of British Columbia, Ontario, Quebec and Prince Edward Island Fruit Growers' Associations and of the Ontario Vegetable Growers' Association

H. Bronson Cowan, Managing Editor and Business Manager
A. B. Cutting, B.S.A., Horticultural Editor
W. G. Rook, Advertising Manager
Garrett Wall, Circulation Manager

1. The Canadian Horticulturist is published on the 25th day of the month preceding date of issue.

2. Subscription Price in Canada and Great Britain 50 cents a year, three years $1.20. For United States and local subscriptions in Toronto, 25c. extra a year is charged for postage. Foreign subscriptions, $1.00 a year, including postage.

3. Remittances should be made by Post Office or Money Express Order, or Registered Letter. Postage Stamps accepted for amounts less than $1.00.

4. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

5. Advertising Rates quoted on application. Copy received up to the 18th. Responsible representatives wanted in towns and cities.

6. Articles and Illustrations for publication will be thankfully received by the editor.

Circulation Statement

Since the subscription price of The Canadian Horticulturist was reduced from $1.00 to 50 cents a year, the circulation has grown rapidly. The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with July, 1907. The figures given are exclusive of sample and spoiled copies and of papers sent to advertisers. Some months, including the sample copies, from 8,000 to 10,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruit, flowers or vegetables.

August	1906	4,220
September	1906	4,300
October	1906	4,330
November	1906	4,775
December	1906	4,814
January	1907	4,947
February	1907	5,520
March	1907	6,380
April	1907	6,460
May	1907	6,620
June	1907	6,780
July	1907	6,920
Total for the year		66,066
Average each issue		5,505
August	1907	6,880
September	1907	7,078
October	1907	7,210
November	1907	7,250

Sworn detailed statements will be mailed upon application.

Our Protective Policy

We want the readers of The Canadian Horticulturist to feel that they can deal with our advertisers with our assurance of the advertisers' reliability. We try to admit to our columns only the most reliable advertisers. Should any subscriber, therefore, have good cause to be dissatisfied with the treatment he receives from any of our advertisers, we will look into the matter and investigate the circumstances fully. Should we find reason to believe that any of our advertisers are unreliable, even in the slightest degree, we will discontinue immediately the publication of their advertisements in The Horticulturist. Should the circumstances warrant we will expose them through the columns of the paper. Thus, we will not only protect our readers, but our reputable advertisers as well. All that is necessary to entitle you to the benefits of this Protective Policy is that you include in all your letters to advertisers the words "I saw your ad. in The Canadian Horticulturist." Complaints should be sent to us as soon as possible after reason for dissatisfaction has been found.

Communications should be addressed:

THE CANADIAN HORTICULTURIST,
506-7-8 Manning Chambers,
TORONTO, CANADA

EDITORIAL

THIRTY YEARS OLD

With this issue The Canadian Horticulturist completes its thirtieth year. The first number was issued at St. Catharines, January, 1878. It comprised twenty-four small pages, including sixteen pages of reading matter. Its first editor was the late D. W. Beadle, then secretary of the Ontario Fruit Growers' Association. The first issue of The Canadian Horticulturist contains the announcement that, "The directors of the Fruit Growers' Association have long felt the importance of having a monthly publication as a medium of communication between the members and a means of imparting . . . . such information as is sought after by those who are interested in fruit culture. . . . It will contain occasional articles intended to guide and help those who seek to cultivate flowering plants and shrubs, and if the less showy, but not less important vegetable garden should have a place now and then in these pages there are those among the readers who will welcome timely information in this department also."

During the 30 years that The Canadian Horticulturist has been published it has never found it necessary to deviate from the lines then laid down. It has grown in size and influence until now it is the official organ and recognized medium of communication between the fruit growers of not only Ontario, but of Prince Edward Island, Quebec and British Columbia as well. At first largely provincial in its character, it is now national in its scope and influence.

For a number of years the late Mr. Beadle managed the magazine with marked ability. In 1887, Mr Linus Woolverton, of Grimsby, was appointed secretary of the Fruit Growers' Association, and editor, and began enlarging it in 1888. During the next fifteen years, under Mr. Woolverton's management, The Canadian Horticulturist was enlarged several times, and became recognized as an authority on horticultural matters. Since the present management assumed control in 1903, the magazine has been further enlarged and improved. To-day The Canadian Horticulturist has a larger paid circulation list and a greater advertising patronage than ever before in its history. In the future, as in the past, it will be the aim of the management to continue to deserve the confidence and support of the fruit, flower and vegetable growers of the Dominion and to still further strengthen and improve The Canadian Horticulturist.

SAN JOSE SCALE ON FRUIT

During the past month great excitement was caused in the Grimsby section of the Niagara district over the importation of fruit infested with San Jose scale. The press of the province spread the alarming news. Most persons who knew of the scale's entrance into the community by such means were afraid. They appeared to expect a sudden onslaught on the orchards of the neighborhood. *The Weekly Fruit Grower* voiced this sentiment when it used the words: "The industry being greatly endangered or entirely destroyed." While it is better to be sure than sorry, much ado was made about practically nothing.

Try to hide it as they may our growers must admit that San Jose scale is spreading in Ontario. The pest is a menace to the industry and is encroaching upon areas where a year or so ago it could not be found. It is a mistake for growers to hide its presence. Grimsby itself is in a scale-infested district. While the spread of the scale is alarming, it does not take place by means of infested fruit. Science teaches that it is practically impossible for the pest to spread from mature fruit to trees at this season of the year. Letters from men who have made the question a study are published in the leading article of this issue. They bear out this statement.

If the Grimsby fruit growers were as energetic in fighting and controlling the scale in their orchards as they were in condemning the importation of the pest on infested fruit, they would benefit the industry in a manner that would be worth while. For years, scale-infested fruit has been shipped from St. Catharines and other districts, where scale is acknowledged to be present, to all parts of the province, and of Canada. Long before scale was found in the orchards of Canada and the United States, scale on fruit was shipped to the east from California. Not one definite case of infestation by this means is known. Scale is disseminated on infested nursery stock and by other means, but not by infested fruit.

San Jose scale is here to stay and it will spread to other localities. Recently it was discovered in the vicinity of Aylmer. It cannot be eradicated, but it *can* be controlled. Fruit growers should not heed the phantom danger of spread from infested fruit but should unite in a determined effort to hold the pest within bounds in their orchards. The Canadian Horticulturist is ready and anxious to assist. Its columns are open for suggestions and expressions of opinion on the subject.

LANDSCAPE ARCHITECT WANTED

A provincial landscape architect should be appointed by the Ontario Government. The suggestion was made by Mr. J. S. Pearce, superintendent of parks, London, Ont., at the convention of the Canadian Horticultural Association held in London last August, and again at the recent convention of the Ontario Horticultural Association in Toronto. It is worthy of careful consideration and definite action on the part of the provincial government. The duty of such an official would be to lay out the grounds surrounding public institutions and buildings, such as jails, insane asylums, normal schools, and so forth, and to plan parks and squares for those towns and cities that desire such services.

Such an appointment would be of great value to a large number of small towns and cities that are constantly struggling with the problem of park and civic improvement, and that are compelled to go to considerable expense to employ competent men for the purpose. Many necessary improvements are neglected for want of funds and expert advice. Were the government to secure such a man and offer his services where most needed, it would tend to work a great change in the appearance of our towns and villages. It is hoped that such an appointment will be announced at an early date.

A CHANGE IN PRICE

Owing to an advance in the charges of our printers for printing The Canadian Horticulturist, and to the increased cost of publication consequent upon the enlarged size of the paper, the subscription price of The Canadian Horticulturist will be advanced slightly at the first of the year. On and after January 1, 1908, the subscription price will be sixty cents a year, instead of fifty cents a year as at present. Our subscribers, however, will still be able to secure The Canadian Horticulturist at the rate of fifty cents a year by subscribing for it for two years, as the rate for one subscription for two years will be one dollar. The rate to horticultural societies and fruit growers' associations which subscribe for the paper for all their members will remain as at present, fifty cents a year.

This advance we feel is justified by the great improvements that have been made in The Canadian Horticulturist during the past year and a half as well as by further improvements which are planned for the future. Although The Canadian Horticulturist has

been almost doubled in size during the past two years, the subscription price, even after the proposed advance has taken effect, will be forty per cent. less than it was when the paper was published in its former smaller size. So many of our subscribers have expressed surprise at our ability to issue such a large, well-illustrated paper as THE CANADIAN HORTICULTURIST for fifty cents a year, we feel that this announcement will not be entirely unexpected.

During December we will continue to accept renewal subscriptions at our present rates of fifty cents a year, or three years for one dollar and twenty cents, or three new subscriptions for one dollar

WIDER COMPETITION NEEDED

The success of the recent Ontario Horticultural Exhibition augurs well for its future. While it was much the largest and best show of its kind ever held in Canada, it has achieved only the beginning of what is to come. Except for a small fruit exhibit from British Columbia and a few entries of flowers from outside points, the exhibition was provincial in its character and name. It aspires to national importance and deserves it. It is located at the most central and most readily accessible point in Canada. Other provinces, therefore, should take greater interest in it and make exhibits.

We would suggest that a number of prizes be offered next year for inter-provincial competition. A beginning could be made with apples. Later on the prizes could be extended to other fruits. Such competitions would aid in determining the old but friendly dispute over which province produces the best. They would advertise each province in a profitable manner and help to bring about a greater uniformity of pack in the fruit of the different provinces.

The display of fruit in boxes at the Ontario Horticultural Exhibition last month showed a great advance in methods of packing over last and previous years; yet, there is still room for improvement. To achieve anything worth achieving one must have an ideal in mind. The ideal system of packing apples in boxes is practised in the Hood River district of Oregon. We would suggest that the management of the fruit department of our show secure a few boxes of well-packed choice fruit from Oregon next year and place them on exhibition as object lessons. It would be interesting to observe wherein they differ from well-packed Ontario fruit. Some of the boxes at the recent exhibition would be hard to beat.

At the convention of the Ontario Fruit Growers' Association, it was announced that the Hon. Sydney Fisher had informed the secretary that it would be impossible to call another fruit conference in the spring of 1908 as the National Live Stock Convention would engage the attention of the department at that time. This shows how unsatisfactory the situation is. The appointing of the date for these conferences should be in the hands of the fruit growers, and not at the command of the department. While the Dominion department is to be commended on having called the conference last year, and on promising another in the future, the situation will not be satisfactory until arrangements have been made by which such conferences can be held at regular and stated intervals.

An exhibit of fruit from the Chilliwack Valley in British Columbia was made at the recent Ontario Horticultural Exhibition. It was sent by the enterprising firm of Cawley & Paisley and comprised 12 boxes of apples and two of pears. This exhibit attracted much attention. The apples were of exceptionally large size for the varieties shown and the color was high. There was much difference of opinion among growers as to the flavor of these apples compared with those of Ontario. It was the general opinion, however, that the size of B.C fruit is gained at the expense of flavor. Some comparisons in flavor were made but they were not altogether fair, as the seasons of varieties in the two provinces are not similar; *e.g.*, when Ontario Kings are at their best, B.C. Kings are commencing to deteriorate. The B.C. fruit was well packed as far as systems of packing were concerned, but the grading was not as uniform as might be expected.

Who They Are

Among the delegates, speakers and friends present at the convention of the Ontario Fruit Growers' Association were, as numbered in the group illustration on page 293: 1. Pres., Harold Jones, Maitland; 2. Prof. H. A. Surface, Harrisburg, Pa.; 3. A. E. Sherrington, Walkerton; 4. C. L. Stephens, Orillia; 5. Wm. Rickard, Newcastle; 6. A. D. Harkness, Irena; 7. W. T. Macoun, Horticulturist, C.E.F., Ottawa; C. W. Gurney, Paris; Past Pres. W. H. Bunting, St. Catharines; 10. W. H. Dempsey, Trenton; 11. P. J. Carey, Dominion Fruit Inspector, Toronto; 12. G. A. Robertson, St. Catharines; 13. Robt. Thompson, St. Catharines; 14. G. C. Creelman, President, O.A.C., Guelph; 15. J. L. Hilborn, Leamington; 16. Murray Pettit, Winona; 17. H. C. Fisher, Queenston; 18. C. E. Fisher, secretary, Niagara Peninsula Fruit Growers' Association, St. Catharines.

A large number of delegates and others were in attendance at the convention of the Ontario Horticultural Association. Some of them appear in the group illustration on page 299. Those numbered are: 1. J. Lockie Wilson, Supt., Horticultural Societies; 2. Past Pres. W. B. Burgoyne, St. Catharines; 3. Pres., Maj. H. J. Snelgrove, Cobourg; 4. R. B. Whyte, Ottawa; 5. Rev. A. H. Scott, Perth; 6. W Jeffers Diamond, Belleville; 8. H. J. Frankland, Toronto; 9. Walter Brooks, Brantford; 10. G. W. Tebbs, Hespeler; 11. J. S. Pearce, Park Superintendent, London; 12. J. O. McCulloch, Hamilton; 13. R. Govenlock, Seaforth; 14. R. Jarvis, Bowmanville; 15. T. H. Lennox, Stratford; 16. W. T. Macoun, C.E.F., Ottawa; 17. Wm. Hunt, O.A.C., Guelph; 18. Alex. McNeill, Chief, Fruit Division, Ottawa; 19. John Cavers, Oakville; 20. Mrs. R. MacDowell, Owen Sound; 21. J. M. Dickson, Hamilton; 22. C. W. Schierholtz Elmira; 23. W. C. Reid, Belleville.

Fruit Shippers Complain

At the recent sitting of the Dominion Railway Commissioners in Toronto, Mr. E. D. Smith, M.P., Winona, and Mr. R. J. Graham, Belleville, supported by Messrs. Robt. Thompson and W. H. Bunting, of St. Catharines, brought clearly before the Board the following complaints and requests for adjustment in the matter of fruit transportation:

1. An application for a stop-over privilege for the purpose of assorting domestic shipments of fruit as well as shipments for export.

2. An application for an order directing the railway companies to provide for the icing of their refrigerator cars at convenient centres, so that they may be iced on due notice before being shipped to points for loading as well as for re-icing in transit.

3. An application for an order directing the railway companies to make better provision for the heating of cars in cold weather or otherwise provide against damage to fruit in transit on cars in fall, winter, and early spring.

4. An application for an order, directing the railway companies to provide better ventilated cars for shipments of fruit during seasons of the year when such cars are required.

5. An application for an order directing the railway companies to provide suitable accommodation for receiving and protecting fruit offered for shipment at stations throughout the country, naming all the stations which you and others know at which reasonable provision for such purpose has not been made.

Representatives of the leading railway companies were present, and admitted the justice of most of the claims made by the fruit growers, and expressed their willingness to assist in remedying matters. It is evident that the railways have made little or no effort to furnish the quantity of cars and the kind of service that is made necessary by the rapid progress of the fruit industry during the past few years. This opinion was expressed by members of the Board, which intimated that the fruit growers may expect a change in the situation before next season.

Northwest Fruit Growers

Probably the most important meeting of its kind ever held in British Columbia will be the forthcoming international convention of the Northwest Fruit Growers' Association, which takes place in Vancouver on Dec. 4, 5, and 6. Great preparations are being made by the secretary, Mr. Maxwell Smith, and the directors, to make it a success. Arrangements have been made with experts on various phases of fruit culture to address the convention, and, as a result, a valuable program has been prepared.

Besides the appointing of committees, and the receiving of reports, the following papers will be read on Dec. 4: "Environment and Selection," J. R. Anderson, Victoria, B.C.; "The Apple," A. I. Mason, Hood River, Ore.; "Small Fruits," J. W. White, Hammond, B.C.; "Remarks Regarding this Convention," Maxwell Smith, Vancouver, B.C.; Dec. 5: "Some Experiments," Prof. L. F. Henderson, Moscow, Idaho; "Pear Culture," Hector Ferguson, Haney, B.C.; "Irrigation," C. A. Hickenlooper, View, Utah; "The Fruit Trade," F. R. Stewart, Vancouver, B.C.; "Transportation," E. H. Shepard, Hood River, Ore.; "Graft Hybridization," W. J. L. Hamilton, South Salt Spring, B.C.; "Peach Growing," Prof. W. S. Thornber, Pullman, Wash.; "Entomology," J. W. Cockle, Kaslo, B.C.; "Walnuts and Prunes," Col. H. E. Dosch, Hillsdale, Ore.; Dec. 6: "Cherry Culture," R. H. Webber, The Dalles, Ore.; "The Role of Parasites," Prof. E. D. Ball, Logan, Utah; "Experimental Farm Work," Thos. A. Sharp, Agassiz, B.C.; "Orchard Culture," Prof. W. T. Clarke, Berkeley, Cal.; and "Apple Tree Pruning," T. W. Stirling, Kelowna, B.C.

In addition to the program, there will be a competitive fruit display, and medals will be awarded for: (1) The best five boxes of apples, five varieties; (2) The best display of fresh fruit; (3) The best box of commercial apples.

Items of Interest

At the Ontario Horticultural Exhibition last month, Mr. W. M. Robson, of Lindsay, showed a Canadian seedless apple. Specimens were of good size and color. The variety will be mentioned at greater length with photographs in later issue.

Four boxes of the best apples at the recent Ontario Horticultural Exhibition were sent to His Majesty the King through the Canadian High Commissioner in London. His Excellency the Governor-General also was presented with two boxes. So pleased was Earl Grey with this fruit that he telegraphed for three boxes more.

Sixty boxes of apples were sent from the Ontario Horticultural Exhibition to London, England, where they were exhibited at the Royal Horticultural Show on Nov. 28 and 29. From there the fruit was distributed among the chief immigration agents throughout Great Britain to advertise the province of Ontario.

At the recent convention of the Ontario Fruit Growers' Association, it was resolved, after discussion, to invite the American Pomological Society to hold its next meeting in St. Catharines.

St. Vincent Vines.—By grafting and selection of early plants a French horticulturist succeeded in getting ripe grapes as early as August 20, and for this reason named the variety "Vines of St. Vincent." It grows rapidly, and is hardy. Read the advertisement of V. Tillier on page vii.

The Fourth Ontario Horticultural Exhibition

MORE entries, a higher average quality of exhibits, and the fact that it proved a financial success, made the fourth Ontario Horticultural Exhibition, held in Toronto, Nov. 12-16, surpass all its predecessors The fact that this year the directors of the exhibition will not have a deficit of several hundred dollars to meet, as was the case with each of the three former exhibitions, is one of the most important features of the exhibition, as it is now recognized that the exhibition at last is firmly established. Next year, the directors will not have to use $800 of their Government grant to pay their debts, as was the case this year. The next exhibition, therefore, should prove an even greater success, financially and otherwise, than was the case this year.

One of the most satisfactory features was the marked improvement in the quality of the exhibits that was noticeable in almost every department. This was true of the boxed fruit in particular, as well as of the chrysanthemums. Many of the vegetables shown were so far superior to anything of the kind ever before displayed at an exhibition in Toronto, they were the cause of general comment. This year entries were received from various points in the United States, as well as from British Columbia, showing that the exhibition is becoming both national and international in its scope. It is now the rallying point each year of the fruit, flower and vegetable growers of the country, and of far-reaching importance in its beneficial effect on the horticultural interests of the Dominion.

The attendant conventions of the Ontario Fruit and Vegetable Growers' Associations, and of the Ontario Horticultural Association, were full of interest, and successful. The fact that they were held in conjunction with the Ontario Horticultural Exhibition, with its attendant low railway rates from all parts of the province, added to their attendance, interest and educational value

THE FRUIT EXHIBIT

The fruit department was a great advance on that of past shows. The general arrangement was excellent considering the accommodation afforded. Not only were the exhibits high class in themselves, but they were of great educative value, particularly the fruit in packages, and that shown by the experiment stations. The commercial packages were superior in the matter of packing and material used to those shown last year. The many fruit men who attended the show were much pleased not only with the character of the exhibits, but also with the experience and pointers they gained by associating with growers from other parts of the province.

In quality of specimens and in number of varieties, the county exhibits were excellent. A large range of varieties were shown. The possibilities of each county were brought to the attention of the passers-by and of growers from other parts of the province, in a manner that was conclusive. These exhibits illustrated the latitudes and localities where varieties do best. It was interesting to observe the variations in variety type produced by the varying conditions that prevail in the different counties. The finest display came from the county of Huron.

The plate fruit was well selected and of good quality. The competition in some classes was close and interesting. There is one point that would make this display even more attractive if it were observed by the exhibitors, and that is that competitors should send a few more apples of each variety than the stipulated five. Some times in transit and in handling one or two of the specimens become injured and bruised. It is best, therefore, to have a sufficient number to insure having five sound specimens. The pyramids of apples were fine, but the number of entries was not as large as might be expected.

A great improvement was noticed in the fruit packed in boxes and barrels. Compared with the package exhibits at the past three or four shows, the boxes this year were well made and of proper material, the packing was good and the fruit well graded. Some evidence of amateur work was noticed. Many of the boxes contained a straight pack which, while attractive for exhibition purposes, is too slow for business fruit growers. A diagonal pack is best for export. It can be handled more quickly, and the fruit stands a better chance of reaching its destination in good condition. In most cases, the packers seem to have had no regard for a proper bilge, which is necessary for tightness; the top layer of fruit was altogether too low in the box.

The material used for making the boxes was, in most cases, what is desired. With few exceptions, also, the dimensions of the material approached closely to the ideal that was mentioned by THE CANADIAN HORTICULTURIST when commenting on the exhibition last year. The tops were nailed only on the ends and not on the sides as well as was done in so many cases last year. Some improvement in nailing, however, can still be made. A properly nailed cover requires only eight nails. At the exhibition, a number of them were fastened with all the way from 15 to 35 nails. The best nails for the purpose are resined ones, not smooth, as were observed in a few cases. As the regulations called for commercial packages, the judges were compelled to disqualify boxes and barrels that lacked the proper brand and marking. Some of the best fruit shown did not receive a prize because this condition was not observed.

The fruit in barrels, also, was high class, and the manner of packing was practically all that could be desired. In two or three cases, the fruit was not packed as level as it should be. It is not difficult to face the head of a barrel of apples, but it requires considerable skill and judgment to "tail" properly. The apples on the tail must be on a uniform plane or the pressure will not be distributed equally. A box press that exerts a total pressure of 400 pounds will distribute, when the apples are level, about 15 or 20 pounds to each apple. This will not injure the fruit, but if two or three apples are slightly higher than the others, and receive 100 pounds or more pressure each, they are bound to be injured and probably crushed. Such injured apples soon would rot, and before the barrel reached its destination, practically all the fruit that it contains would be made unmarketable by slackness and rot.

Last year many of the barrels were bound with only six hoops. This year, all of them had eight hoops, which is better. The judges on the boxes and barrels had a difficult task. A few of their decisions did not meet with the approval of the exhibitors because the latter were not fully acquainted with all the reasons that made the judges place the awards as they did. In the barrel classes, for instance, a few points were deducted for wide staves. Barrels with narrow staves can be depended on to reach their destination in good condition as far as such is affected by the staves. As all staves absorb moisture on the inside from the apples, and naturally become dry on the outside from sun and air, wide ones are apt to warp and thereby spoil the appearance of the barrel and probably injure the fruit as well. On one or two barrels the nailing was bad. Six nails on the first hoop are enough, and no nails should be used on the second. Four or five nails are enough for each liner.

Three collections of fruit in packages for export were a credit to the associations that prepared them. The first prize collection put up by the Norfolk Fruit Growers' Association, Simcoe, Ont., consisted of a collection of apples that could scarcely be beaten anywhere. The character of the packing was excellent and the quality of the fruit above the ordinary. The collection that won second prize was shown by The St. Catharines Cold Storage and Forwarding Company. It contained a greater variety of fruit than the Norfolk exhibit, and the packing was just as good, but the quality was not up to the standard. Four collections of fruit on plates were very attractive. The first prize was won by The St. Catharines Cold Storage and Forwarding Company, with a large selection of varieties and classes. The Norfolk Association won second prize with apples that were decidedly of superior quality. The third prize was awarded to the Grantham Fruit Growers' Association, which showed a nice collection. The fourth award was placed on an exhibit from the Orillia Horticultural Society, which showed a collection of apples that was most creditable for the district.

Some of the provincial fruit experiment stations were represented with exhibits of educational value. Secretary Linus Woolverton assisted the local experimenters who were present in answering questions of passers-by and growers who desired information respecting varieties and fruit culture in the various localities. The Wentworth station, of which Mr. Murray Pettit, Winona, is director, showed a splendid collection of grapes. The list of varieties was large and the bunches well filled. The Burlington station, directed by Mr. A. W. Peart, sent a nice collection of various fruits. Twenty-five varieties of apples were shown that had been produced on trees grown from scions secured in the Southern States. A nice feature of this exhibit was a collection of 50 varieties of currants, cherries, plums, pears and so forth in bottles. They were put up in antiseptic solutions and were exceedingly attractive. A nice collection of apples was shown by the Simcoe County station, which is under the management of Mr. J. C. Caston, of Craighurst. A large collection of apples was shown by the Bay of Quinte station, of which Mr. W. H. Dempsey, of Trenton, is manager. The size and quality of the fruit was excellent, but the space allotted for its display was not sufficient. The St. Lawrence station, managed by Mr. Harold Jones, Maitland, also showed a fine collection. A large display of fruit in bottles (116) was on exhibition from the Lake Huron station, managed by Mr. A. E. Sherrington. This station also sent 40 varieties of apples and pears. The display was excellent. A small but creditable exhibit was made by the Algoma station, which is managed by Mr. Chas. Young, Richard's Landing, St. Joseph's Island. A decidedly interesting and valuable exhibit was put up by Mr. W. T. Macoun, horticulturist at the Central Experimental Farm, Ottawa. It contained a large variety of apples and grapes. Many new and cross-bred varieties were shown.

DECORATED DINING TABLES

The decorated dining tables did not appear to good advantage beneath the balcony at the rear of the hall. For this reason, they were disappointing. There did not appear to be the same interest taken in them, either from the competitors or the visitors, as in the past. Three of the four exhibitors did not take the trouble to secure proper dining tables and chairs. Instead, they used planks set on benches, and thereby lessened the effect. The table decoration shown by J. H. Dunlop easily won first prize. Messrs. A. Jennings, Toronto; T. Manton, and Geo. Manton, Eglinton, Ont., secured awards in the order mentioned.

THE VEGETABLE EXHIBITS

The display of garden vegetables probably was the finest ever shown in Canada. Everything was of high quality and exhibited in an attractive manner. The entries were large and the competition keen. The judges had a difficult task in placing the awards. They did good work and most of their decisions met with the approval

of the exhibitors and the onlookers. A little dissatisfaction was expressed, over the decision in the class for Paris golden celery. Many growers thought that either first or second prize should have been given to one bunch of celery that received nothing, and which they claim was the largest and best lot in the collection. In the class calling for general collections of vegetables some superior specimens were shown. The first and the second prize collections were exceptionally good. They were shown by Messrs. J. G. Brown and W. Harris, Humber Bay, respectively. The third prize went to a fairly good collection shown by Mr. J. W. Rush, also of Humber Bay. The collections of four varieties of celery were as fine as could be grown. The first prize went to Mr. Frank Jones, Humber Bay. The first prize for a collection of six varieties of potatoes was awarded to a clean, smooth lot shown by Mr. C. Plunkett, Woodbridge. For an excellent collection of eight varieties of onions, Mr. J. G. Brown won first prize. The ropes of onions were high class. All other vegetables were of fine quality and the classes were well contested.

MISCELLANEOUS

The biological department of the Ontario Agricultural College, Guelph, had an exhibit of injurious insects and fungi, in charge of T. D. Jarvis, B.S.A. A trade exhibit of apples in boxes was made by the Biggs Fruit and Produce Co. of Burlington. A display of paper and cushions for barrel heads and boxes was made by G. P. Reade, of New York City, who is represented in Toronto by Thos. Bain, P.O. Box 472. Many visitors were attracted to the exhibit of Doolittle hose couplers, which device should be welcomed by all persons that use water hose. The preserved fruits in jars was of high quality. The Women's Institute booth in charge of Miss Shuttleworth, attracted the lady visitors, and added to the educational value of the exhibition.

The Ontario Horticultural Association Convention

THE second annual convention of the Ontario Horticultural Association was held in Toronto, on Nov. 14 and 15, 1907. The president, Mr. W. B. Burgoyne, St. Catharines, was in the chair. The first day's attendance was exceptionally large, being quite an improvement on that of last year. After the president's address, Mr. H. B. Cowan, secretary-treasurer, reported a balance on hand of $86.

Supt. J. Lockie Wilson, Toronto, then delivered an encouraging address on "The Work of Our Horticultural Societies," in which he said that the man who makes two flowers grow where only one grew before is a public benefactor, and he gave it as his opinion that "whosoever could make two ears of corn, or two blades of grass, to grow upon a spot of ground where only one grew before, would deserve better of mankind and do more essential service to his country, than the whole race of politicians put together." He impressed upon the members present the fact that the work of the horticultural societies was a noble one, and mentioned how, by visiting the cotters' homes and instructing them in the best kinds of plants and flowers to grow, and telling them where they could buy them the cheapest and best, a great work could be done in beautifying those humble homes and making the lives of the citizens more pleasant.

WORK FOR SOCIETIES

"What Can Horticultural Societies Do to Promote Civic Improvement," was the topic on which Major H. J. Snelgrove, of Cobourg, Ont., read a very instructive paper. He said: "To this query my answer is: By arousing and inviting all citizens to develop beautiful and wholesome surroundings. By raising the standard of municipal thrift and tidiness. By materially contributing towards making our Canadian home life brighter, healthier and happier. To do these things, by means of the organization which we have at hand, working out its valuation by dint of patience, stick-to-itiveness and common sense." He submitted that the prime object of our horticultural societies should not be merely to cultivate a love of flowers by the distribution among the members, once a year, of seeds, plants, bulbs, shrubs, and trees, but our constant aim should be to educate the public sentiment along the lines of civic improvement, and thereby achieve the greatest good to the greatest number.

The question was raised by the president, Mr. W. B. Burgoyne, St. Catharines, Ont., that the only way to handle the bill-boards question would be to impose a license tax, and the larger the bill-board, the higher the license.

INCREASING MEMBERSHIP

"The Best Methods of Increasing the Membership of a Horticultural Society," was the subject of a talk by Mr. R. B. Whyte, Ottawa: "I do not suppose there is any subject that can come before the members of the horticultural societies with greater force than that of increasing the membership," said Mr. Whyte. "The more members we get the larger the grant and the more we can do. After an experience of about 15 years in the matter, we have very definite ideas in the Ottawa Society. I do not know as there is anything better than a personal canvass on the part of the directors. There is hardly any community in the country that have not 200 or 300 people that are willing to pay a dollar if you can show them that you are doing something. I think that is the chief feature in increasing the membership."

Mr. Joseph Barker, Kincardine, Ont., remarked that when they first started the society in Kincardine all they thought they had to do was to appeal to the members and to inform the press that a horticultural society had been organized in the town and then they would do all the rest for them, but they learned, very quickly, that there was no response, not because they had any dislike to the name of the society or its object, but simply because there was not $5 accompanying the request. By personal canvassing, Mr. Barker has built up a membership of 118 in his society. He intimated that his aim is to have a membership of not less than 150.

Other experiences in the matter of increasing membership were mentioned. Some delegates said that they gave concerts in connection with the monthly meetings in the winter, and strawberry socials after the monthly meetings in the summer. One member said that the society members met every month on the lawn of one of the members and held their meetings there and had a talk on roses in the rose season, or on peonies in the peony season, and in that way made the meetings more interesting to the people attending.

A valuable paper on "The Selection and Classification of Flowers," was read by John Cavers, Oakville, Ont. "Cities and Towns Beautiful," was the subject of a paper by Mr. J. S. Pearce, Park Superintendent, London, Ont. A paper on "How Are We to Expend Our Funds to the Best Advantage," was read by Rev. A. H. Scott, M.A., Perth, Ont. "Should the Horticultural Society Act be Amended, and If So, How?" was discussed by Mr. H. B. Cowan, Toronto. A paper on "Wild Flowers Worth Growing," was read by Mr. John Dickson, Hamilton. These papers, with the discussions that followed, will be published in later issues of THE CANADIAN HORTICULTURIST.

GROWING PEONIES

Mr. R. B. Whyte, of Ottawa, gave a remarkably apprehensive and instructive address on "The Growing of Peonies." He advised all gardeners to keep notes. The bud of the peony is as beautiful as that of the finest rose that ever grew, and the perfume is equal. He referred, also, to the time it first appears through the ground. He thought there was nothing more interesting than to see the fat red buds coming up through the ground, and then the beautiful profusion of leaves and stems, and afterwards the flowers, and then for months after the flowers are dead, the foliage is an ornament to the garden. The plant itself is good for 20 years; you do not need to shift it. Mr. Whyte then read a long list of the different species of peonies that he recommended for growing in gardens.

Mr. Alex. McNeill, Chief, Fruit Division, Ottawa, delivered a very interesting address on "Fruit that Can Be Grown on a City Lot, 66 by 99 feet." Mr. McNeill referred to the different kinds of fruits and flowers that can be grown on a small city lot. He describes the details of training trees along the fences and trellises, and growing grape vines over small sheds. THE CANADIAN HORTICULTURIST expects to publish a more detailed account of this address at a later date.

OFFICERS AND DIRECTORS

The following are the officers and directors that were elected for the ensuing year: Pres., Major H. J. Snelgrove, Cobourg; 1st vice-pres., R. B. Whyte, Ottawa; 2nd vice-pres., Roderick Cameron, Niagara Falls; recording secretary and treasurer, H. B. Cowan, Toronto; corresponding secretary and editor, J. Lockie Wilson, Toronto; directors, Rev. A. H. Scott, M.A., Perth; W. Jeffers Diamond, Belleville; R. J. Franklin, Toronto; A. Alexander, Hamilton; Isaac Langstreth, Seaforth; J. T. Rose, Brantford; J. S. Pearce, London; Auditors, J. O. McCullough, Hamilton; Mrs. Robt. McDowall, Owen Sound. The retiring president, Mr. H. B. Burgoyne, was elected an honorary director.

Hon. Mr. Monteith, in an address, said that the past year had given a great impetus to horticultural work, that the quality of the fruit productions had never been excelled, and that the exhibition in Massey Hall bore out strongly what he had said. In concluding, Mr. Monteith thanked the society for the support the department had received at the hands of the horticultural interests of the province.

RESOLUTIONS

It was resolved that a special committee, composed of Messrs. W. T. Macoun, R. Cameron, John Cavers, H. B. Cowan and Wm. Hunt, be and is hereby appointed to be known as the Committee on Nomenclature, with instructions to inquire into the whole question of the adoption in Canada of a standard on nomenclature, and descriptions of species and varieties of plants, including ways and means for the establishing and maintaining of such a standard; and to enter into correspondence wih sister societies in this country and in some of the northern United States, with a view to securing the co-operation of two or more such societies in the preparation and publication of authentic lists of varieties of perennial phlox, Japanese iris and gladioli, the said committee to report at the next convention of the association.

Later it was resolved further: That a special committee, consisting of Mr. Macoun, Mr. Hunt and Miss Blacklock, be and is hereby appointed to act as a Novelties Committee to report at the next meeting of this association.

It was moved, seconded and carried that Mr. Cowan's address on the Horticultural Societies' Act, and all proposed amendments to Act, be

referred to the new directors with power to act.

Resolved that a special committee be appointed to draft a memorial recommending the Ontario Government to have embodied in the proposed new series of school books, readings on horticultural topics as suggested by Mr. Scott's paper. This was supplemented later with the resolution: "That the committee that just reported be continued in office to prosecute during the year, the work referred to in the report adopted by further memorials to the Government or by interview with the Minister of Education and his deputies, in order to secure the introduction into the proposed new series of readers the horticultural features desired by this association.

Fruit Growing in British Columbia

By the Representative of The Canadian Horticulturist, who recently visited British Columbia in the interests of Western Fruit Growers and of this Publication

THAT British Columbia will be the greatest fruit producing province in the Dominion is acknowledged by those who are conversant with the rapid progress in the growing and shipping of fruit that is being made in that province.

Intending purchasers should personally select their land. In many instances locations that appear good on the map are of little value, while adjoining lots may be desirable. In some sections the soil within a radius of a quarter of a mile varies from the best to soil that is almost useless.

The prices asked for land, compared with those being asked for fruit land in other sections of the Dominion, appears at first to be high. The average price is about $125 an acre for unimproved lands. Prices range from $10 to $200 an acre. Some land is ready for the plow, while other land requires to be cleared. Clearing the land costs from $50 to $250 an acre. The apparent high price of the land is caused in some cases by the cost of the irrigation system required to secure the necessary water, but it is offset by the productiveness of the soil, and the long growing seasons.

Almost every kind of soil is found in the different sections of the province. It ranges from clay loam to a volcanic ash, mixed with sand. While the last mentioned soil may not appeal to fruit growers as one suited for fruit growing, it is the same soil as that found in the celebrated Hood River district in Oregon, where a wide range of fruit has been grown successfully for years. Some varieties of apples from the Hood River district this season sold for $3.35 a box.

The climate in British Columbia is as varied as the soil. The southwestern coast section is mild in winter, and has excessive moisture. Other sections have a very small rainfall at any season of the year, and the soil requires irrigation to produce growth. Apples are grown successfully in almost every part of the province. Peaches are produced in the southern portion and Black Hamburg grapes, almonds, and other tender fruits have been grown in quantities in the Similkameen Valley.

Larger crops of fruit are said to be produced from the soil in British Columbia than from the soil in any other part of the Dominion. Some growers from the east claim to make two dollars in that province to every dollar they made in Ontario. A grower near Kelowna received $626 for the strawberries grown on half an acre. Another grower received $1,000 for strawberries grown on seven-eighths of an acre. From ten Northern Spy apple trees a grower picked over twenty five boxes from each tree, and sold them for $1.60 a box.

It has often been remarked by the eastern growers that the flavor and color of the fruit grown in British Columbia is not equal to Ontario grown fruit. There is very little difference in the flavor, not enough to be noticed by the consumer. The color is all that can be desired. On an average there is more sunshine in British Columbia than in Ontario; on this account, the fruit should be more highly colored than eastern fruit. The size of the fruit is good. If large fruit is desired it can be produced. The writer saw King apples in Chilliwack measuring eleven and three-quarter inches; Blenheim Orange thirteen and three-quarter inches, and Spy twelve and a half inches in circumference.

THE MARKETS

The chief market for British Columbia fruit is the western provinces, but that market does not satisfy the growers in every respect. Many of them are looking to the British markets for an outlet for their best grades. It will not be long before eastern growers will be having British Columbia fruit competing with their fruit on the British markets.

In the packing of fruit British Columbia growers have learned much from their neighbors across the line and now are some years in advance of other parts of the Dominion. Barrels are not used. The growers claim that fruit in boxes can be handled more carefully and packed more attractively. They obtain higher prices for fruit packed in boxes than they could were it placed in barrels. Expert packers are paid large salaries, which are more than returned to the growers by the increased prices obtained for properly packed fruit.

New settlers can derive a revenue from their land after the first year by planting the space between the trees with strawberries, onions, or potatoes. The profits to be made in this manner exceed in some cases the price paid for the land.

Scarcity of labor is a serious handicap to the fruit growing industry of British Columbia. The man who has a grown-up family is envied. The Chinese are found to be the most faithful workers, and are content with their position in life. The Japanese are more energetic and are anxious to be the equal of the white man. The Hindus are of little value for any purpose. White help is scarce and independent. As soon as a white laborer has a little money he desires to own land, and is not content to remain an employee.

The question of transportation is one that should be thought of when purchasing land. Great improvements are expected in this respect in the near future. Land is expensive at any price, when it is impossible to market the fruit at a low cost.

CHINESE GARDENERS

Vegetable growing is controlled largely by the Chinese. They rent the land from the property owners, and judging from the farms seen by the writer they work the land to its full capacity. The Chinese peddle their vegetables in two baskets supported on their shoulders by a long stick.

Some of the best land for vegetables is to be found in the Chilliwack valley. Mr. J. H. Copeland, late of Lambton county, Ontario, is growing large quantities of celery. The soil on his farm is a black loam and it is producing a superior quantity of vegetables.

Irrigation in some districts is overdone. Some of the land is being irrigated unnecessarily. If the cultivator was kept working, it would conserve the moisture. Too much water is as disastrous as not enough. It takes much time and experience to know when and how to apply the water.

Vegetable Growers' Convention

THE third annual convention of the Ontario Vegetable Growers' Association was a decided success. The papers were all discussed in a practical manner. From start to finish everything was done in a business way. The president, Mr. R. J. Bushell, of Williamsville, Ont., occupied the chair.

"Greenhouse Construction for Vegetable Growers" was the first matter taken up, and it was well handled by Mr. J. D. Fraser, of Leamington, and Robt. W. King, of Toronto. The prevailing opinion seemed to be that the day of the wooden frame greenhouse was gone, and that the tendency of the time was for a larger house, using iron frames, the objects desired being plenty of sunlight and ventilation. A larger and better plant was secured by allowing plenty of light and ventilation, and it was demonstrated that it was a mistake to allow plants to get too near the glass. Heating greenhouses was discussed at considerable length, the concensus of opinion being that for small plants, hot water was the best and for large plants, steam. It is of great importance to have the plant properly installed, so as to get proper circulation.

Mr. T. Delworth, Weston, Ont., gave a very interesting address on "Greenhouse Management." He strongly advocated ventilation. His ventilators are put under the plate so as to have the air above the plant and not toward the plant direct. Solid beds are preferable to benches, and do not require nearly so much watering.

At the afternoon session, "Melon Culture" was dealt with in an able manner by Mr. T. J. Gorman, of Outremont, Que., who sells melons in the New York market at $12 to $15 a dozen. Mr. Gorman advocates a large melon of good flavor. Mr. W. A. Emery, of Aldershot, Ont., led the discussion, and stated that the average city man did not know a good melon from a bad one, and that a great many culls were put on the market. He advocated a medium-sized melon, of perfect flavor.

"Tomato Growing" was discussed at length by Mr. W. C. McCalla, of St. Catharines. During the discussion, it was stated that it is impossible to grow tomatoes for canning factories at 25 cents a bushel. Many gardeners are going to give up the growing of this vegetable unless better prices are paid. A paper on "The Marketing of Vegetable Crops," by Frank Williams, was much appreciated. It is published on page 301 of this issue.

GARDEN INSECTS

Dr. Jas. Fletcher, of the Central Experimental Farm, Ottawa, gave a valuable address on "Insects that Trouble Vegetable Growers and How to Combat Them." He advocated the use of poisoned bran, lightly spread over the ground, to kill cut worms, and stated that most of the pests could be eradicated by the proper use of spraying materials and other well-known remedies. "The Vegetable Canning Industry" was dealt with by T. B. Revett, B.S.A., Toronto.

The president, R. J. Bushell, stated that as a result of the efforts of the Ontario Vegetable Growers' Association, certain protection on products coming from the United States had been granted by the Dominion Government. This had materially increased sales. All gardeners in his district had made half the price of his membership on a bushel of tomatoes, which, on account of this protection, he was able to sell for $1.25 instead of 75 cents.

Reports of three conventions and of Ontario Horticultural Exhibition crowded out some excellent articles that were prepared for this issue, including "Notes from the Provinces."

Ontario Fruit Growers in Convention

At the convention of the Ontario Fruit Growers' Association, held in Toronto on Nov. 13 and 14, many important items of business were transacted. A change was made in the basis of representation on the board by directors. Action was taken in the matters of nursery legislation, express rates, and terminal facilities at Toronto. The change in the basis of representation reduces by one the number of directors from the eastern part of the province, and adds one to the Niagara district. The following directors were elected for the ensuing year: R. B. Whyte, Ottawa; A. D. Harkness, Irena; F. S. Wallbridge, Belleville; W. Rickard, Newcastle; R. W. Grierson, Oshawa; A. W. Peart, Burlington; G. A. Robertson, St. Catharines; Jas. E. Johnson, Simcoe; D. Johnson, Forest; A. E. Sherrington, Walkerton; C. W. Gurney, Paris, and C. L. Stephens, Orillia. Reports were received from the cooperative and new fruits committees. They will be published in a later issue.

TRANSPORTATION COMMITTEE

This report was presented by Mr. W. H. Bunting, of St. Catharines, who referred to the shortage of cars and the need for better railway facilities at stations and for transit, to the desire of fruit growers for stop-over privileges for assorting and grading apples at divisional points, and to the need for a definite means of securing redress for loss or damage due to the negligence, delay, or lack of proper equipment on the part of the railways.

NURSERY CONTROL AND LEGISLATION

There is a feeling in the association that nurserymen should be compelled to guarantee stock true to name. Legislative control of nursery stock has been under consideration for some time. At the convention, both sides of the question were heard. A letter by Mr. E. C. Morris, of Brown Bros. Nurseries, was read. Mr. Morris took the ground that there is no need for legislative control, as no more than 5% of stock sold is untrue to name. It was contended that a guarantee bond would give no better guarantee than is now furnished by the standing which reliable nurserymen occupy. Mr. Morris thought that it would be unfair to demand compensation of $4 or $5 on a tree that proved untrue to name and which had been purchased from a nursery for 25 cents. Such would pay better than farming. Nurserymen are just as anxious as the growers to have their stock turn out satisfactory and true to name.

In replying to the foregoing, Mr. Geo. A. Robertson, St. Catharines, cited many instances where orchards had been planted with trees untrue to name and that resulted in large losses to the planters. He read a number of extratse from various laws enacted in the United States and in the Dominion provinces, respecting this question and the inspection of nursery stock. In conclusion, the following suggestions for the enactment of a law were made: 1. No nurseryman shall be allowed by law to send or sell any known variety under a new name, or to employ any other method for deceiving the public. 2. No firm shall be allowed to do business under more than one name. 3. All stock shall be free from noxious insects and fungous and other diseases. 4. That the law should be made more stringent with respect to the fumigation of nursery stock. 5. Stock shall be guaranteed true to name when sold as such; this stock should be tagged with the name of the variety and also the locality of production.

A lively discussion followed the reading of these two papers. Mr. D. L. Morris pointed out that there is a great chance for errors occurring in the production of nursery stock even though the nurserymen be honest and desirous of doing what is right. Employees often make mistakes unintentionally. Mr. W. E. Wellington stated that while fruit growers are as intelligent as other men, nurserymen have as many rascally customers as rascally tree agents. There is no object in selling trees that are wrongly named. Mr. Wellington suggested that a committee of fruit growers meet a committee of nurserymen to discuss the question. The suggestion was adopted. Messrs. G. A. Robertson, W. H. Bunting and Robt. Thompson of St. Catharines, and P. W. Hodgetts, secretary of the association, Toronto, were appointed to act for the growers, and Messrs. W. E. Wellington, E. D. Smith and D. L. Morris, for the nurserymen.

EXPRESS RATES

Some valuable information and suggestions were brought out in a paper on "Express Rates in Relation to the Fruit Industry," by J. L. Hilborn, Leamington. It will be published in a later issue with the discussion that followed. The transportation committee was commissioned to bring the questions involved and the complaints before the Board of Railway Commissioners. The members of the committee are: Messrs. W. H. Bunting, St. Catharines; L. A. Hamilton, Clarkson; R. J. Graham, Belleville; R. W. Grierson, Oshawa; E. D. Smith, Winona; J. L. Hilborn, Leamington; and Mr. Randall, of Grimsby.

The necessity for a new fruit market and terminal facilities at Toronto, was discussed by Mr. H. Dawson, Toronto, members of the City Council, Toronto; Board of Control, Toronto, and others A full report of the discussion will be published later. It resulted in the appointment of a committee to meet a committee of city authorities to discuss the question. The fruit growers appointed were: Messrs. H. C. Fisher and Wm. Armstrong, Queenston; L. A. Hamilton, Clarkson and W. H. Bunting, St. Catharines.

HORTICULTURAL STATION

An outline of the progress that has been made at the Ontario Horticultural Experiment Station was given by the director, Mr. H. S. Peart, Jordan Harbor. It is published on another page of this issue. In the discussion that followed, Mr. Sherrington stated that the farm should be of great value to southern Ontario, but would not benefit the growers in the north very much. For the latter section, it would be of greater value if it would cooperate in its work with the Central Experimental Farm. Mr. Sherrington suggested that the work at local experiment stations should be continued. He suggested that the Jordan Station carry on extensive work in the propagation of new varieties, and in the origination of others. Established varieties should be tested on different soils.

Mr. Murray Pettit, Winona, said: "If the new station can produce a peach with the productiveness, size, hardiness, and shipping qualities of the Elberta, with the color and dessert qualities of the Early Crawford, and as early in season as Triumph, it will pay the total expense of its maintenance for many years to come. New varieties of plums also are needed, particularly one as productive, hardy, and of as good quality as the Lombard, with the shipping qualities of Monarch, and as early as the Japan varieties. The grape industry wants a new variety as productive, hardy and vigorous as Concord, as early as Champion, and with the shipping qualities of the tough-skinned Rogers. The station can do excellent work in testing the value of fertilizers on fruit orchards. Pruning should be given attention. Demonstrations could be made of the respective merits of low-heading and high-heading peach trees. Experiments should be conducted also in thinning fruits, and in spraying." Mr. Pettit suggested that a board of control be appointed to assist in the management.

"The horticultural department at the O.A.C., Guelph, has done good work for similar localities," said Mr. E. D. Smith, M.P., Winona, "but it is of no value to southern Ontario. The station in the Niagara district was needed long ago. While fruit growers are growing a large number of varieties, the question is, 'Are they growing the best that are in existence?' Extensive variety tests at this station should determine this. We want five or six varieties of peaches, like the Elberta, but of different seasons. There is not a good all-round pear. If the variety does not blight, it has other defects. For this reason, many growers are abandoning this industry. It would be well to try a cross between Anjou and Seckel. We want a good shipping grape for the west. That market is all our own, as British Columbia cannot grow grapes successfully. The Lindley is an excellent shipping variety, but it bears a good crop only once in about 20 years. We want a grape that has a good skin, that is a good bearer, and that will stand rough handling."

Dr. Wm. Saunders, C.E.F., Ottawa: "It is almost impossible to combine all desirable features in one variety. Such should not be expected from the new station, or any other. The aim should be to produce the best possible. If a committee of consultation be appointed, it should not consist of too many members. Each man will have his own opinion, and add to the confusion."

Mr. F. H. Pattison, of *The Weekly Fruit Grower*, Grimsby: "There is more money invested in Ontario in tender fruits than in apples. The O.F.G.A. does not seem to appreciate this fact, as it appears to have *degenerated* into an apple growers' association. The most important work that should be undertaken at the new station is the origination of new varieties of tender fruits, and experiments in spraying."

MARKET CONDITIONS IN ENGLAND

"Market Conditions in Great Britain," was the subject of an address by Mr. J. A. Ruddick, Dairy and Cold Storage Commissioner, Ottawa who spoke as follows:

"There is a great market in the west for tender fruits. Pears and tomatoes can also be shipped successfully to Great Britain, although the latter is rather difficult to transport in cold storage. Great Britain will take all the first-class fruit that Canada has to offer. There is no need to look for other markets. They can handle all of the apples that we can produce. The larger the quantity, the more notice is taken of it. While all dealers in Great Britain are willing to admit that Canadian apples are best, they do not always give as much for them as for apples from other countries. Canadians are likely to meet new competition. Large quantities of Tasmanian apples are being put on the English markets, and are meeting with favor from dealers and consumers.

"British dealers say that Canadian apples have improved in quality and grade during the past few years. Purchasers have greater confidence in Canadian apples than in American. Our growers should be particular not to misrepresent contents of packages. Apples seldom are sold according to marks on barrels. Merit alone counts. It is a mistake to send packages wrongly marked.

"In respect to selling apples by auction system, would say that, personally, I would prefer to sell f.o.b. to consigning, although good sales often are made on consignment. It is better to consign to the large centres rather than to inland points, as there is greater competition."

Mr. Ruddick referred also to the canned fruit trade, and mentioned its possibilities. There is a good market for canned apples, but only one variety should be placed in a can. The demand for raspberry pulp is large. England will take large quantities of cider. The average price is 17 cents a gallon, and the freight four cents. Growers can determine for themselves whether or not the industry would be profitable.

OTHER VALUABLE PAPERS

Space in this issue of THE CANADIAN HORTI-

CULTURIST does not permit of more than a passing mention of a number of other valuable papers that were read. They were as follows: "The Place of the Fall Apple in Future Planting," by Alex. McNeill, Chief, Fruit Division, Ottawa; "Commercial Fruit Growing in Western New York," Willard Hopkins, Youngstown, N.Y.; "Common Enemies of the Fruit Grower," T. D. Jarvis, B.S.A., O.A.C., Guelph; "The Fight Against the Scale in Pennsylvania," Prof. H. A. Surface, Harrisburg, Pa.; "Horticultural Development in Ontario," Prof. H. L. Hutt. O.A.C., Guelph; "Influence of Stock and Scion upon Varieties," Prof. Surface and W. T. Macoun; "Business Systems for Cooperative Associations," by an expert. All these papers will be published in part or in full in subsequent issues.

IT WAS RESOLVED

That this association desires to express its appreciation of the value of the work carried out in the past through the experimental fruit stations, and hopes that this work may be extended and enlarged. That we would respectfully suggest as the line along which extension takes place, that the new Jordan farm be made the source of supply from which new fruits, tested or developed there shall be sent to the local stations for the purpose of testing their adaptability to the various localities, and, finally, that the director of the Jordan station be made general supervisor of the local stations, subject to the direction of a Board of Control, as to the work both at Jordan and at the local stations.

That the association desires to express it cordial approval of the Fruit Marks Act, and of the manner in which same has been administered under the direction of Alexander McNeill, Chief of the Fruit Division of the Department of Agriculture at Ottawa; we believe the high standing secured by the Canadian apple in the markets of Great Britain is largely due to the Fruit Marks Act and the work done under it.

That the association tenders its thanks to Prof. H. A. Surface, Mr. Willard Hopkins, and to the other gentlemen who have assisted in the program.

That the association recognizes the value of the work performed by the Canadian Industrial Association in the erection of a suitable building on the exhibition grounds for the proper accommodation of the fruit exhibits.

That the association endorses the action of the provincial government in providing for a display of Ontario fruit at the exhibition of the Royal Horticultural Association in London, England.

That the association recognizes the liberality of the provincial government and the council of the city of Toronto, in providing funds for the carrying on of the Ontario Horticultural Exhibition and the assistance of the citizens in helping to make it a success.

That the association tenders its thanks to the retiring president, Mr. Harold Jones, for his intelligent and energetic administration of its affairs and regrets that, owing to a change in the constitution, it is unable to avail itself of his services for another year. The results of the year's work will remain as a memorial to his industry, discretion and public spirit.

The Apple Crop and Prices

LARGE quantities of apples are being shipped to Old Country markets, principally from Ontario and Nova Scotia. The situation is mentioned by crop correspondents of THE CANADIAN HORTICULTURIST as follows:

DURHAM COUNTY

Newcastle.—The apple crop was large, but lacked somewhat in color and size because of the short growing season. Dealers who paid high prices say that they are losing money, as the net returns are lower than was expected. The farmers, however, are receiving 20 times the profit received in other years from the same acreage. An increased area will be planted next spring.—W. H. Gibson.

HALTON COUNTY

Oakville.—There are very few apples stored this year. They have all been shipped. No. 1's sold for $3 to $3.50 a bbl., and No. 2's for $2.75. A large number went to the United States. Apples that are shipped to the Old Country should net good returns.—W. H. MacNeil.

LINCOLN COUNTY

St. Catharines.—There has been no trouble in making sales this season, more enquiries having been received than could be supplied. No. 1's sold for from $3.25 to $3.50, and No. 2's from $2.40 to $2.75. Only a few will be stored. Prices to buyers outside of the association were $1.25 to $1.50, the grower to do the picking. All apples were clean.—Robt. Thompson.

OXFORD COUNTY

Ingersoll.—In some sections the apple crop was large, but in others only fair. The apples were rather small but of good quality. Especially where spraying was done was the fruit good. Prices on the average were $1.50, picked in orchard, while some extra good lots brought $2.—J. C. Harris.

GREY COUNTY

Owen Sound.—There will be about 26,000 bbls. of apples shipped from here. The fruit is of good quality and well colored, but rather small. The Owen Sound Fruit Co. will ship about 8,000 bbls. Prices ranged from $2.25 to $2.50 for falls and $2.50 to $3.25 for winters. There will be about four or five cars stored this season. About 8,000 bbls. have been shipped for export, but about 5,000 of them will be stored by the buyers in Brighton.—Adam Brown

NORFOLK COUNTY

Simcoe.—Apples in sprayed orchards sold for $3 a bbl. Unsprayed orchards sold for from $1.50 to $2.—James E. Johnson.

HASTINGS COUNTY

Belleville.—The Belleville Apple Growers' Co-operative Association sold their Spys at $4 a bbl. for No. 1's and $3.25 for No. 2's, f.o.b. here. They also sold No. 1 Colverts for $2.60 and $2.70, No. 2's at $2.45 and No. 3's at $1.75. Apples so far have realized satisfactory prices. There will not be many apples stored this year.—F. S. Wallbridge.

HALTON COUNTY

Nelson.—The Mt. Nemo Fruit Growers' Association will ship about 3,500 boxes. They are putting Nos. 1's and 2's in boxes and selling No. 3's with the culls to canning factories and on the local market. Buyers began season by offering $1.50, picked. Later they increased to $1.75 for No. 1's and 2's, $1 for No. 3.—R. M. Spence.

It is interesting to note that a shipment of gooseberry and Herbert raspberry plants was made recently from the nurseries of E. D. Smith, Winona, Ont., to the chief of the department of agriculture in Finland.

POULTRY DEPT.

Conducted by
S. Short, Ottawa

Poultry Problems

The high prices that prevail throughout the Dominion for all grains cause some anxiety to most poultrymen as to whether or not it is worth while keeping poultry for profit. The fact of the matter is, that in many sections the farmers are disposing of their stock at very low prices. It is to be regretted that this idea of a general reduction of stock should spread further. Reports state that in some sections, particularly in the back part of Addington County, the farmers are slaughtering cattle, in some cases animals not fat enough for human consumption, and also selling cows at from six to eight dollars a head.

While the crop reports show a falling off of from 10 to 40 per cent. of last year's reports, there is, as far as I can learn, no reason for the extremely alarming reports which are the cause of the farmers selling their stock at the ruinous prices mentioned above.

The heavy rains which were general in the eastern part of Ontario in the beginning of November prevented the bringing to market of the usual supply of hay and grain, owing to the impassable roads in many places. The outcome of this heavy reduction of all stock can have but but one effect, and that is a proportionate shortage of dairy and poultry produce next spring and summer. It is a safe prediction to make, I think, that the poultry keeper who keeps his stock will be more than compensated by the high prices which must be obtained for eggs next year. Economy, though, should be practised now more than at any time. In many flocks there are old hens, perhaps old males, and a number of surplus or cull cockerels. These should be disposed of at the earliest opportunity. Some try to economize by reducing the ration. This is the height of folly, and decidedly cruel at this time of year.

With good, hard roads and sleighing, the grain situation, in Ontario anyway, should be improved. By all means, keep over this winter, at least, the usual number of laying hens, for either the price of feeding materials must come down or the price of poultry produce go up. These matters are bound to adjust themselves with all concerned in the near future.

AN IDEAL CHRISTMAS GIFT

OUR PROPOSITION

is to send you a light which, burning common kerosene (or coal oil), is far more economical than the ordinary old-fashioned lamp, yet so thoroughly satisfactory that such people as ex-President Cleveland, the Rockefellers, Carnegies, Peabodys, etc., who care but little about cost, use it in preference to all other systems. We will send you any lamp listed in our catalogue "19" on thirty days' free trial, so that you may prove to your own satisfaction, that the new method of burning employed in this lamp makes common kerosene the best, cheapest and most satisfactory of all illuminants.

A LIGHT FOR COUNTRY HOMES

that is convenient as gas or electricity. Safer and more reliable than gasoline or acetylene. Lighted and extinguished like gas. May be turned high or low without odor. No smoke, no danger. Filled while lighted and without moving. Requires filling but once or twice a week. It floods a room with its beautiful, soft, mellow light that has no equal.

Write for our Catalogue "30" and our proposition for a 30 days' free trial. 669

THE 1900 WASHER CO.
355½ YONGE ST. - TORONTO, ONT.

Should Hold a Conference this Winter

LETTERS on the need for another Dominion Fruit Conference continually are being received by THE CANADIAN HORTICULTURIST. It is the unanimous opinion that another conference should be called for the spring of 1908. Fruit interests in all parts of Canada feel the need.

Mr. Jas. S. Scarff, Woodstock, Ont.: "I am pleased to notice that a move is being made for another Dominion Conference in the near future. I am decidedly in favor of it as I feel assured a vast amount of good resulted from the conference held in March, 1906, at Ottawa. Owing to lack of time at that meeting, a number of important matters that were on the program for consideration were not dealt with and should be placed on the program at the next conference.

"I feel quite assured that it is the wish of the leading fruit growers of the provinces that another conference should be held at an early date, and I have no doubt but that, when the matter is brought before the Hon. Mr. Fisher, he will recall to his mind that he assured the delegates to the last conference that another one would be called within a reasonable time. I would therefore suggest that the executive committees of the various provincial organizations lay the matter before the Minister of Agriculture for the Dominion, urging him again to call the delegates from the various provinces together for another conference. In reference to questions that might be discussed at the next conference, I can fully endorse the suggestions made by the secretary of the Ontario Fruit Growers' Association in the August number of THE CANADIAN HORTICULTURIST."

Prof. H. L. Hutt, O.A.C., Guelph: "I certainly approve of holding another Dominion Fruit Conference, and have no doubt that the Hon. Sydney Fisher will be as good as his word and call such a conference as soon as he deems wise. This is an age of conferences, and sometimes the thing is overdone. I think at least two years is often enough for the bringing together of delegates from all parts of the Dominion as was done last time. The important work accomplished by the last conference has had its effect upon the fruit interests of the whole Dominion, and there are many questions still to be taken up at the next convention."

Mr. Jas. C. Ford, Oakville, Ont.: "It would be well to have another Dominion Fruit Conference, as the last was very beneficial to all those who attended, and to the industry as a whole. One point that was not touched on, and that should have been, was the sizes of baskets. This is not strictly defined. The manufacturers are making all sizes and shapes. The Marks Act is not being enforced thoroughly. I know that some manufacturers are making the six-quart basket and not stamping them. This arises from the fact that the baskets are not all uniform, and it is very hard to detect the sizes, unless you are thoroughly acquainted with the manufacturing of baskets. I would like to have a uniform size, length, depth and width, of all packages adopted. The government might have forms and sell these, or give them to the manufacturers, so that there would be no trouble then in the different sizes."

Mr. R. J. Graham, Belleville, Ont.: "If it is decided to hold another Dominion Fruit Conference, I think that the shippers and jobbers should have some consideration and be able to vote on questions discussed. We can do much good by getting all sections of the Dominion interested in fruit together, and I cannot see that any harm could come of it. The package question should be definitely settled, fixing a maximum as well as minimum size for boxes and barrels. The No. 2 grade of apples might be better described. The transportation question needs much attention. Questions regarding the growing of fruit should not take up much time at such gatherings, but the packing, selling, shipping and other commercial matters could be more profitably attended to."

Mr. J. M. Fisk, Abbotsford, Que.: "The conference held in 1906 has resulted in improving conditions along the whole line, but there is yet ample scope for further improvements. Transportation is still a complex problem. The nomenclature of our fruits should be dealt with by a standing committee, as there are too many synonyms, and it frequently occurs that the same variety is grown, sold, and even exported under two or more names. One name for a variety should suffice for the whole Dominion. These are many other live problems that require further legislation to meet the needs of the present age.

"The cooperative scheme of spraying, grading, packing, canning, shipping, and selling our fruits, should be worked for all it is worth in every section of the Dominion where it is practical to do so. It would raise the commercial value of our fruits, and be more remunerative to the growers. Cooperation has done wonders for the dairy interests of the Dominion, and should, when properly managed, produce as good results for the fruit growers.

"It is the custom of the American Pomological Society to meet once in two years, and they find plenty of matter to engage their attention for several days at each session. At our last conference in 1906, the question of forming a Dominion Pomological Society was left in obeyance, because of the deep interest and sympathy in our work taken by the Minister of Agriculture, who gave us to under-

The Quickest Grower in Shade Trees

CAROLINA POPLAR (Populus Monilifera)

THIS rapid-growing tree with its large, glossy leaves and symmetrical head is one of the finest we know of for shade or street planting and for screens and windbreaks. It retains it foliage later than most varieties and is well adapted to smoky cities. It is the "Popular Poplar" everywhere on account of its extraordinary rapid growth and the many uses to which it can be placed. It stands smoke, soot, dust, will thrive on sandy or heavy lands, and will grow vigorously under conditions which would kill almost any other kind of tree.

Carolina Poplar—Planted Three Years

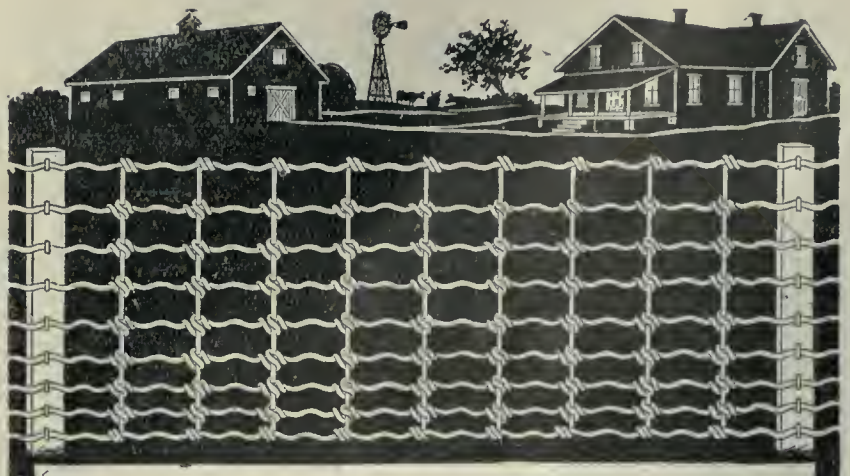
AS FENCE POSTS: The Carolina Poplar is recommended for living fence posts. The adopted method is to plant the trees 10 or 12 feet apart. Two or three years after planting, a picket or stave of wood, to the desired height of the fence, is nailed on to the trees and the wires strung thereon and secured by staples. Taking into consideration the present cost of "cedar" posts, and the fast advancing price of them, it can be seen that the Poplar fence is one of the cheapest, strongest and most permanent fences that can erected on the farm or estate. A stock of 50,000 for spring delivery.

E. D. SMITH

EIGHT HUNDRED ACRES

WINONA, ONT.

ESTABLISHED QUARTER CENTURY



Take a Look at a Farm Fence Worth Building

Ideal is the recognized standard fence for Canadian Railways. Railroads build fences for permanence. Canadian farmers are buying more Ideal Fence to-day than any other make. They keep our two factories busy, turning out fence at the rate of 30 miles a day. You see this fence everywhere you go. You know there must be reasons. Just take a good look at it as shown above and read the argument for buying

IDEAL FENCE

Looks strong, doesn't it? It *is* strong. It's made to last. All made of No. 9 hard steel wires, both horizontals and uprights. Heaviest fence wires used. It adjusts itself in extremes of temperature. That's why Ideal fence always stands up erect. The lock which is used at every intersection of wires is shown in lower left hand corner. Neither climbing over nor horning, nor crowding, nor anything else can make the wires slip. It is not a fence that gets holes in so cattle and horses can poke their heads in and hogs root their way through. You can't tell about the galvanizing from looking at the picture but look at the fence itself for that. More heavily galvanized than any other. Easy to build, fits any surface, hilly or level

Is the Argument sound? People who have investigated it answer yes. That's why so many are buying it. Take a little time to think of *the essentials* of good fencing before you buy. The Ideal has all of them. We know you'll want Ideal when you know about it. Write for our book about fencing, FREE.

THE McGREGOR BANWELL FENCE CO., Ltd.
Department M. Walkerville, Ontario

THE IDEAL FENCE CO., Ltd.
Department M. Winnipeg, Manitoba

¶This is a photographic reproduction of the latest model Horse Power Spramotor, fitted as a vineyard sprayer. A most excellent machine, worthy of your careful investigation. For vineyard, orchard, potato, mustard or surface spraying.

If you are interested, write me personally.

B. H. HEARD, 1068 KING STREET, LONDON, CAN.

Or, 1068 ERIE STREET - - BUFFALO, N.Y.

Mention The Canadian Horticulturist when writing

stand that another conference would be held in the near future. Should such materialize, it would meet all the needs of the fruit interest, as by such means the growers and shippers are brought into closer touch with the government from the fact, that the conference being held at Ottawa during the sitting of the House enables many of its members to attend the conference, who become interested in the work, take part in the discussions, and are prepared to support such resolutions as are adopted by the conference.

"The method of each province being represented by a delegation of prominent fruit growers is more practical, and aids more in developing the spirit of cooperation, than a Dominion society with a government grant and membership would do, particularly if holding its sessions away from the Capital."

Apple Cold Storage

An investigation of the cold storage of apples was begun in 1906 by the Iowa Agricultural Experiment Station in cooperation with the United States Department of Agriculture. These experiments were largely an application to Iowa fruit and conditions of fundamental principles of apple cold storage determined during the last few years in other sections of the country by the United States Department of Agriculture. As the results of the experiments are in accord with the general principles developed in other sections of the country, a brief summary of the Iowa work is herewith given.

THE TIME TO PICK APPLES

It has been determined that well-colored, hard-ripe fruit will keep better in cold storage than fruit picked before it is mature or after it has gone beyond full ripeness. Many varieties of apples, when stored immaturely, develop a trouble in storage known as "scald," the skin becoming brown in patches, especially on the green or poorly colored side of the apple, which detracts from the appearance and commercial value of the fruit.

STORE ONLY THE BEST GRADES

It usually pays to store only the best grades of fruit. The poorer grades of fruit are generally of low commercial value and do not warrant the expense of cold storage except when the apple crop is scarce. Inferior fruit has been found to deteriorate considerably in storage from decay starting in worm holes, around scab spots and in other imperfections. The fruit needs to be picked with extra care. A bruise or cut in the skin made with the finger nails, by dropping apples on each other in picking, by emptying them into the boxes or barrels, and by handling the packages roughly, becomes very conspicuous as the season advances and detracts from the appearance of the fruit, beside making an easy starting place for destructive rots. This is especially true of tender-skinned fall varieties like the Wealthy. Most of the commercial losses in apples from decay are related primarily to the rough mechanical handling of the fruit.

STORE QUICKLY AFTER PICKING

The best results are secured when the fruit is placed in cold storage quickly after it is picked and packed. A delay of a week in storing the fruit in warm weather, will cause the fruit to begin to deteriorate a month or more earlier than it would if it had been stored quickly after picking. The danger of losses from decay, scald and other troubles is also much less when the fruit is stored quickly.

STORE AT 32 DEGREES FAHR.

Various temperatures for the storage of fruit have been tested. A temperature of 32° gives the most satisfactory result in commercial practice, but the fruit keeps well for a shorter time in a temperature as high as 36° if stored quickly after picking.

The keeping quality of the apple has been tested when stored in barrels, bushel boxes and

crates. For tender, quick-ripening fall varieties, a box has given the best results, as the fruit cools more quickly than it does in a barrel. The barrel is satisfactory for the slow-ripening winter varieties, while an open crate is desirable only when the fruit is to be stored for a short time, as it is likely to shrivel when stored in an open package.

The use of paper wrappers preserves the brightness of the fruit, prevents bruising from contact in the packing, and, with some varieties, appears to assist in keeping the fruit in prime condition a little longer. Unprinted newspaper makes a satisfactory wrapper. It is adapted to the storage of high-priced fancy fruit.

DO NOT STORE TOO LONG

The most satisfactory result is secured when the fruit is withdrawn from cold storage and used while in prime condition. If held beyond this time, it deteriorates rapidly after removal from the low temperature, and, if withdrawn while the fruit is prime, it appears to keep as long as apples in the same condition of ripeness that have not been in cold storage.

Petroleum Emulsion for the San Jose Scale

BULLETIN No. 49, by C. D. Jarvis, of the Storrs Experiment Station, treats of a new remedy for the San Jose scale. The lime-sulphur wash, which for a number of years has been considered the standard remedy, has many undesirable qualities. It is corrosive to man, to horses, and to spraying apparatus; its preparation requires care, time and an elaborate outfit; it must be applied while warm, and if applied in the fall frequently causes injury to the trees.

The various proprietary remedies or so-called "soluble oils" on the market have been thoroughly tested and favorably reported upon by several experiment stations and prominent fruit growers. The cost of these preparations, however, makes their use almost prohibitive for commercial orchardists. These soluble oils are concentrated petroleum emulsions, made by a process known only to the manufacturers, and are the outcome of the strong demand for an efficient scale remedy that may be more conveniently prepared and less offensive to handle.

The Storrs Experiment Station, in the bulletin referred to, describes a method of preparing a "soluble oil," which after one yeas'r observation, shows signs of becoming a very efficient and convenient remedy. Messrs. J. H. Hale, of South Glastonbury, and Barnes Brothers, of Yalesville, who tested it in an experimental way last year, report favorable results. The formula, which consists of two parts, follows:

1.—THE EMULSIFIER

Carbolic acid (crude liquid 100%)....2 quarts
Fish oil (pure Menhaden or whale oil) 2½ quarts
Caustic potash (granulated).....1 pound

Heat to 300° F. remove from the fire and immediately add

Kerosene.....3½ quarts
Water.....5½ quarts

Very serious difficulty has been experienced in getting materials of the proper grade. This is especially true with regard to the local dealers who are not familiar with the requirements and who are likely to substitute "something just as good."

The emulsifier may be made up in any quan-

FOR SALE AND WANT ADVERTISEMENTS

Advertisements under this heading inserted at rate of one cent a word for each insertion, each figure, sign or single letter to count as one word, minimun cost, 25 cents, strictly cash in advance.

LANDSCAPE GARDENING.—Mr. C. Ernest Woolverton, Landscape Designer, care of W. H. Manning, Boston, Mass.

WASHINGTON COUNTY, ARKANSAS, COMPRISES a large part of the Ozark Fruit Belt, and wants twice its population. Fayetteville, "The Athens of the Ozarks," the County Seat and metropolis of Washington County, wants new business enterprises. A land of great opportunities for business man and farmer alike. Write FOR NEW DESCRIPTIVE AND ILLUSTRATED BOOKLET. THE COMMERCIAL LEAGUE OF FAYETTEVILLE, E. R. WILLSON, Secretary, Fayetteville, Ark.

To Fruit Growers

¶We require from now until the end of the season a regular sending of colored apples, also Greenings and Russets. Highest prices realized for best goods. References furnished on application. Please write for all information required to

W. PALEY & SON
Established 1849
Kirkgate Market, Leeds, England
Mention The Horticulturist when writing

Dominion Line
ROYAL MAIL STEAMSHIPS

"Alberta," new steamer, 14,000 tons, building
"Albany," new steamer, 14,000 tons, building

PORTLAND—LIVERPOOL

SS. "CANADA" . . . . . Dec. 7th
SS. "DOMINION" . . . . " 14th
SS. "WELSHMAN" . . . . " 21st
SS. "OTTOMAN" . . . . . " 28th

PORTLAND TO AVONMOUTH

SS. "TURCOMAN" . . . . Dec. 5th
SS. "ENGLISHMAN" . . . " 19th

Favorite Steamers for all kinds of perishable cargo having fan ventilation, cold storage, and cool air chamber.

GEORGE W. TORRANCE,
Freight Agent . 28 Wellington St. E., TORONTO
M. A. OVEREND, J. W. WILKINSON . . . . . Travelling Freight Agents
DOMINION LINE—MONTREAL and PORTLAND, Maine.
Mention The Canadian Horticulturist when writing.

CANADA'S OLDEST NURSERIES

Blackberries
Currants
Grapes
Raspberries

The small fruits are what are earning the most money for the fruit grower and we are making them our specialties. We have the largest blocks of this class of stock to be found in the Dominion, as well as a complete assortment of all classes of **FRUIT AND ORNAMENTAL TREES AND SHRUBS.**

WRITE US BEFORE PLACING AN ORDER

Agents wanted to introduce the great **HERBERT RASPBERRY.** Large stock of first-class 2-year-old plants.

THE THOMAS W. BOWMAN & SON CO. LIMITED
RIDGEVILLE, ONT.
Mention The Canadian Horticulturist when writing

tity and kept indefinitely. The cooking is best done in an iron kettle equipped with a cover and so arranged that it can be readily removed from the fire. The mixture being inflammable, it is nnsafe to do the cooking near a building.

2.—THE COMPLETE SOLUBLE OIL

Water	1 part
Emulsifier	8 parts
Crude petroleum	18 parts
Rosin oil	4 parts

This part of the formula may be made up at any time without heat. The materials should be added separately and in the order named.

By securing the materials in large quantities the complete "soluble oil" may be made up for 16 to 18 cents a gallon. If diluted with 15 parts water, as is recommended, the spray mixture costs slightly over one cent a gallon. The lime-sulphur wash costs, including labor and fuel, at least one and one-half cents a gallon and the commercial soluble oils cost, depending upon the amount of dilution, from two and one-half to three and one-half cents a gallon.

DIRECTIONS FOR USE

After a thorough stirring, take one part of the "soluble oil" to 15 parts of water. Before mixing up large quantities, pour a few drops in a glass of water to see if it mixes. If it has been properly made the mixture will form a milky emulsion without any free oil on the surface. When satisfied that it will readily mix or "emulsify," a convenient way is to pour three gallons of the soluble oil into a 50 gallon spray barrel and fill the barrel with water.

Thoroughness of application is of utmost importance. Badly infested orchards should receive two applications, one in the fall and the other in the early spring. As a regular practice, however, one application, just after the leaves drop in the fall, should keep the insect in check.

Where the leaf curl is prevalent in peach orchards the oil spray in the fall may be supplemented by a spring application of lime and sulphur. A finer nozzle should be used for the oil than for the lime-sulphur wash. In this way more thorough and more economical work may be done. Because of its greater spreading action and of its adaptability to a finer nozzle, one gallon of oil emulsion will go as far as one and one-half gallons of the lime-sulphur wash.

Complete information is given in the bulletin regarding the source and cost of materials, the preparation of the "soluble oil," the necessary precautions and the time and method of application. The bulletin will be sent free upon request by addressing the Storrs Experiment Station, Storrs, Connecticut.

Western Notes

By a Staff Representative

The west has many attractions and novelties for the horticulturist. In the fall, the north-shore route of the C.P.R. presents a cold and harsh appearance; the fields of Manitoba appear brown and dry. Like oases in a desert, from the horticulturist's standpoint, are the station grounds at Regina and Calgary. The beautiful flowers and green grass are refreshing to look upon. The landscape part of the work reflects credit upon the designers. They have made good use of the limited amount of space at their disposal.

Upon entering the Rocky Mountains, one does not expect to find such beauty spots as the station grounds at Field and Glacier. Geraniums, nasturtiums, coleus, stocks, snapdragon, and other equally tender plants were in full bloom early in November. Snow-clad mountains enclose each of these beauty spots, and to travellers, after many hours of riding through canyons and around mountains, their appearance is a sight never to be forgotten.

As the coast is approached, the traveller observes that British Columbia flower growers are more favored with mild climate than are those of Ontario. In Vancouver and New Westminster, sweet peas, dahlias, roses, stocks, and many other flowering plants were in full bloom in November. While at the home of Thos. R. Pearson in New Westminster, THE CANADIAN HORTICULTURIST's representative was presented with a large bunch of roses. They were equal to anything grown in Ontario at any season of the year. Dahlias were seen growing as large bushes. As many as 50 or 60 large blooms were counted on a bush at one time, each bloom a perfect flower, and lots of buds showing.

Another novelty is the hollies. These shrubs are now at their best, being loaded with large red berries. Rhododendrons and azaleas are perfectly hardy. Many beautiful specimens are to be seen on the lawns of the residents of the coast cities. Chrysanthemums were seen everywhere, many of them being in flower late in October.

Please send a sample copy of THE CANADIAN HORTICULTURIST. In the past I have been taking United States papers, but in the future I want home publications.—R.W., Newmarket, Ont.

T. J. POUPART
Covent Garden, London, England

CANADIAN APPLES A SPECIALTY

Commission only. All goods sold by private sale. Highest prices guaranteed. Correspondence invited.

Cables—POUPART, LONDON
References:
LONDON & COUNTY BANK, COVENT GARDEN
BANK OF MONTREAL, MONTREAL

Imperial Bank
OF CANADA

Established 1875

Head Office . Toronto
Capital Authorized, $10,000,000.00
Capital Paid-up, . $4,835,000.00
Rest, - - $4,835,000.00

Savings Department at all Branches
Interest allowed on deposits of One Dollar and upwards and credited four times a year.

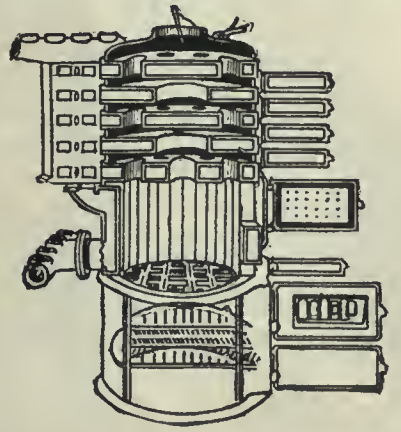
GOES LIKE SIXTY
SELLS LIKE SIXTY
SELLS FOR $65
GILSON
GASOLENE
ENGINE
For Pumping, Cream Separators, Churns, Wash Machines, etc. FREE TRIAL
Ask for catalog—all sizes
GILSON MFG. CO. Ltd. Dept. 104 GUELPH, ONT.

IF YOU HAVE APPLES
OR POULTRY TO CONSIGN

we can handle them for you to advantage. If apples are in car lots, write us and we can sell them for you f.o.b. your station

THE DAWSON COMMISSION CO. Limited
Cor. West Market and Colborne St.
TORONTO ——— ONTARIO

Now that the Cold Weather is Coming Along



You will want a heating plant in your conservatory that will be reliable and not require worry and constant attention.

THE
"SOVEREIGN"
Hot Water Boiler

is that kind of an apparatus. It works equally well attached to either a tank supply, or the city water service.

OUR BOOKLET, "EFFICIENT HEATING," FREE TO ANY ADDRESS

Taylor-Forbes Company, Limited, Guelph, Ont.
1088 King Street West, Toronto 122 Craig Street West, Montreal
Mention The Canadian Horticulturist when writing

R. & W. DAVIDSON
9 Virginia Street, GLASGOW
——— Branches in ———
LONDON, LIVERPOOL, MANCHESTER
BRISTOL, NEWCASTLE and LEITH

Invite Consignments Apples
For Best Family Trade. Boxes Preferred

For Particulars Refer to Editor of this Journal.
Mention The Canadian Horticulturist when writing

Horticultural Progress in Nova Scotia

THE Department of Agriculture of the Government of Nova Scotia is making its influence felt in all lines of agriculture and horticulture in the Maritime Province which it represents. Recently Principal Cumming, Secretary for Agriculture, associated with Mr. F. L. Fuller, Superintendent of Agricultural Societies and Associations, imported from Great Britain a splendid selection of Clydesdale horses, Ayrshire cattle and Highland sheep. They also purchased in Ontario and other parts of Canada some 98 head of pure-bred rams. Almost all of this stock has, during the months of September and October, been disposed of by public auction at the people's own prices, under bond to be kept within the province for breeding purposes.

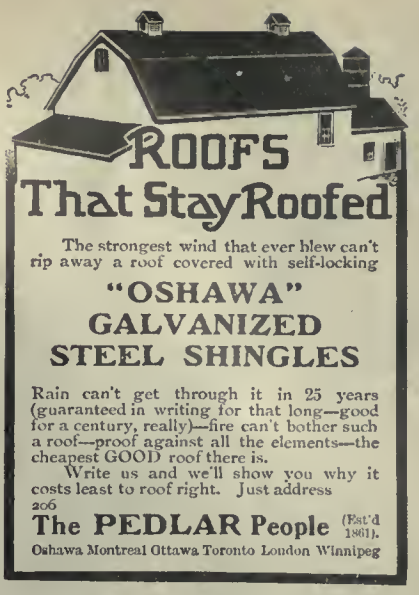
During his visit to the Old Country, Mr. Cumming arranged with Mr. J. Howard, Agent-General for Nova Scotia, for a large exhibit of Nova Scotia fruit, to be shown at the Royal Horticultural Society Show at the Crystal Palace and at various local shows in England. This matter had been partly taken in hand by Professor Sears before his resignation from the chair of horticulture at the Agricultural College in Truro, and it would have been difficult to have carried out the details had it not been for Mr. G. H. Vroom, of Middleton, N.S., Dominion Fruit Inspector, having received permission from Ottawa to cooperate with the local department to make this exhibit a success.

Through Mr. Vroom's efforts, there have been forwarded to London, England, via boat sailing on October 29, the equivalent to 240 boxes of Nova Scotia's choicest fruit. To be exact, there were 150 boxes and 30 barrels, representing 30 varieties. This consignment of fruit was exhibited at the Royal Horticultural Society Show. held in London on November 28 and 29, It was entered in competition with fruit shown from the various provinces and, in some cases, colonies of Great Britain. Part of this fruit was bought outright by the government, but the major portion of it was sent forward in consignments of from 5 to 12 boxes from private growers, with the understanding that the fruit will be sold at public auction immediately after the exhibition, and the proceeds go to the growers. Later on another shipment will be made with which to supply the exhibition at the Crystal Palace, London, and also for local shows throughout Great Britain.

For a number of years Nova Scotia has been exhibiting fruit at the above shows, but, for the most part, the exhibit has been limited, especially in quantity. It is expected that the large exhibit sent over this year will form a noteworthy feature of the various shows and will serve to exploit the valuable fruit areas of this province to a greater degree than ever before. Another important aim of this exhibit is to test the possibility of selling choice Nova Scotia fruit, in boxes, in the London markets. At the present time, practically all the fruit from this province is put up in barrels. However, there is a growing feeling that, at least by some fruit growers, an effort should be made to capture a share of the high class "box-fruit" market.

Fruit growers in the Annapolis and Cornwallis Valleys are feeling most optimistic over the outlook for this year. The crop has been considerably above the average, the quality in general superior, and the prices almost record ones. This means a large inflow of money to this part of Nova Scotia and affords a special encouragement to those men who, during the past few years, have been setting out large areas of new orchards.

The Agricultural College at Truro opened its winter session on Tuesday, November 5. This date is much later than the date of opening



The strongest wind that ever blew can't rip away a roof covered with self-locking

"OSHAWA" GALVANIZED STEEL SHINGLES

Rain can't get through it in 25 years (guaranteed in writing for that long—good for a century, really)—fire can't bother such a roof—proof against all the elements—the cheapest GOOD roof there is.

Write us and we'll show you why it costs least to roof right. Just address 206

The PEDLAR People (Est'd 1861).

Oshawa Montreal Ottawa Toronto London Winnipeg

The Foster Pottery Co.
LIMITED

MANUFACTURERS OF
Flower Pots
Azalea Pots
Fern and Bulb Pans
Straight Fern Pans
Seed Pans

Send for Price List and Catalogue

Main Street West, Hamilton, Ont.

Mention The Canadian Horticulturist when writing

A GREAT DISCOVERY
St. Vincent's Vine Plant

A new vine plant producing ripe grapes two months previous to all other varieties. This new plant will grow in Canada as well as in any other country. It's a FORTUNE for the agriculturists. It grows remarkably fast and it is very "hardy," that is, it will resist the greatest frosts. These plants come direct from our vineyard in BOURGOGNE, FRANCE, and they are delivered as soon as they arrive f. o. b. to consignee. They are payable after delivery and are fully guaranteed. Give your order now as the number is limited. Any further information and prices will be cheerfully given

BOX 24
ST. JOHN BAPTIST P.O.

V. TILLIER

MONTREAL
CANADA

Windsor Salt

—the one thing needed

—to give just the right savour.

174

of other institutions of the same kind in Eastern Canada. However, so many of Nova Scotia farmers' sons are required to pick and pack the apples and to gather in the potatoes and root crops that it is impossible for them to leave home until the fall season is about over. The attendance of students is good and everything bids fair for the ultimate success of this useful institution.

Mr. P. J. Shaw, B.A., has been appointed lecturer in horticulture at the college, in succession to Prof. F. C. Sears, who last spring accepted a position on the horticultural staff of the Massachusetts Agricultural College. Mr. Shaw spent last summer studying at Cornell and Amherst, Mass., and also visited various fruit sections in New York state and spent a few days at St. Anne de Bellevue and the Central Experimental Farm, Ottawa. Mr. Shaw was born and brought up on a fruit farm near Berwick, N.S. He is a graduate of Dalhousie College and was one of the Macdonald-Robertson group of school teachers who took courses in Nature Study at the prominent United States and Canadian institutions and, subsequently, took charge of this work in his own province. His training is excellent and his work has been of a high order, so that we feel sure in predicting that the Nova Scotia college will maintain its standing along horticultural, as well as other lines of work.

The Department of Agriculture will shortly send inspectors into the area which was discovered to have been infested with the brown-tail moth last spring. Their report will be looked forward to with interest and the subsequent procedure of the Department will largely depend upon the standing of affairs as found by these inspectors. In any case, no effort will be spared to try to eradicate if possible, or at any rate keep in control, this most troublesome insect pest.

Fruit and Poultry

A GOOD COMBINATION
EACH HELPS THE OTHER

Canadian Horticulturist - - - - $ .50
Canadian Poultry Review - - - - .50
$1.00

OUR SPECIAL RATE FOR THE TWO FOR ONE FULL YEAR ONLY, .80

Address all orders at this special rate to

THE CANADIAN HORTICULTURIST

DO IT NOW. TORONTO, ONT.

Progress at Horticultural Experiment Station

H. S. Peart, B.S.A., Director, Jordan Harbor, Ontario

THE property at Jordan Harbor, Ont., now known as "The Horticultural Experiment Station," was very generously donated to the Ontario Department of Agriculture by Mr. M. F. Rittenhouse last year, and soon afterwards work was commenced in preparing it for experimental work. The farm, which contains about 90 acres, was formerly two small places.

Last year a start was made in removing old buildings, cross fences and dead trees. During the winter, the wood-lot was cleaned up, forest weeds removed and about four acres made ready for reforesting. This spring a number of seedlings were planted and these have made a fair growth. This work is to be continued next year under the direction of the Forestry Department of the Ontario Agricultural College. Most of the farm was seeded with red clover in oats, so that very little has been done along horticultural lines this season.

Last June, Mr. W. H. Day, of the O.A.C., made a complete survey of the property and prepared a plan for tile draining which was undertaken at once. During the next 10 weeks a number of men and teams were busy at the drainage work and 10½ miles of tile were laid. This outlay at the beginning should very materially increase the value of the farm for the work which is to be done for the horticultural public of Ontario. About half a mile more drain will be laid this fall.

* A portion of an address delivered at the convertion of the Ontario Fruit Growers' Association last month.

Northern Grown Plants MEAN SUCCESS

OUR SPECIALTY IS Ornamental Trees and Shrubs, but we carry also a full line of the best Hardy Fruits. ¶ We have several hundred especially fine Azalea Mollis, well budded and bushy, perfectly hardy for out of doors, or they may be flowered inside

CANADIAN NURSERY CO., LIMITED

POINTE CLAIRE, P. Q.

Mention the Canadian Horticulturist when writing

SPECIAL GLASS FOR GREENHOUSES

Conservatories of The Dale Estate, Brampton, Ont.
Glass supplied by our Toronto Branch

GOOD QUALITY, FLAT, EVEN THICKNESS AND WELL CUT

PILKINGTON BROS.

Limited

Toronto, Montreal, Winnipeg, Vancouver

Mention The Canadian Horticulturist when writing

Early in the spring, some work was done to hold the lake front from washing and a wall of brush and boulders was built. This has held the bank during the summer, but as we have had no very heavy storms the lasting effects cannot be ascertained with any degree of certainty. In addition to the brush, a concrete pillar has been made to throw out into the lake and several others are contemplated.

A number of service roads have been made at convenient distances through the farm, so that all parts may be easy of access at all times. These have been graded so that they drain readily and may be easily kept in repair. Through the part to be used for ornamental planting has been laid out a curved drive on which the principal buildings will face. Early in the summer the lake road was graded and a part has been gravelled, which adds very much to the appearance of the place.

Last year the apple orchard was in sod. A part was plowed in the autumn, a part in the spring, while the balance has been left in sod. Half of the fall and half of the spring plowed sections were given clean culture all season. The other halves were seeded with a cover crop, but owing to the drought very little of the seed germinated. Very little difference can be noticed in the appearance of the trees on the two tilled sections. On the sod, the trees show the effect of the lack of moisture as indicated by the less vigorous and healthy growth. This experiment should be carried on for several years. This orchard is in good condition and can be used to good advantage in spraying and pruning demonstrations as well as the cultural test which has been undertaken.

Before closing, I desire to draw attention to the road improvements along the town line which are being carried on by Mr. Rittenhouse, according to the plans prepared by the Department of Public Works. This road originally was narrow, crooked and muddy. At present it is being macadamized and drained so that it may be used as an illustration of good road making. The widening and improving of the road will add greatly to the general appearance of the station and in addition will give a first-class road to connect with the Hamilton, Grimsby and Queenston stone road at Vineland.

The foregoing epitome gives only a general idea of the preparatory work that has been carried on this season. A good foundation is more than half the building, and the work this summer has been of the nature of a foundation.

Spraying for Potato Blight

Careful potato growers can no longer doubt the advantages of spraying in "blight" years; but some doubt whether the practice is profitable year after year. Tests along this line have been continued for five years by the experiment station at Geneva, N.Y., and the evidence presented in bulletin No. 290, giving details of the fifth year's test and summaries of preceding ones, seems conclusive in favor of the practice. The gain each year has been profitable; and there is already much more than enough excess of gain over cost to pay for spraying five years more.

Similar gains, though not quite so great, were obtained by farmers under tests carefully checked by the station and by much larger numbers of farmers who sprayed independently. If you grow potatoes, it will pay you to get this bulletin from the station—it costs you nothing, not even postage—and study it carefully before your crop management is planned for next year.

I have looked THE CANADIAN HORTICULTURIST over carefully, and find that it is the best paper of its kind now published.—C. M. Conner, Brooks, Oregon.

I am a subscriber for two other papers on horticulture and fruit growing. I find THE CANADIAN HORTICULTURIST by far the best, not only for the amateur, but for the professional as well.—Wm. Beattie Okanagan Lake, B.C.

THE BEST LINIMENT
OR PAIN KILLER FOR THE HUMAN BODY
Gombault's
Caustic Balsam
IT HAS NO EQUAL

For the Human Body —It is penetrating, soothing and healing, and for all Old Sores, Bruises, or Exterior Cancers, Boils Corns and Bunions CAUSTIC BALSAM has no equal as a Liniment.

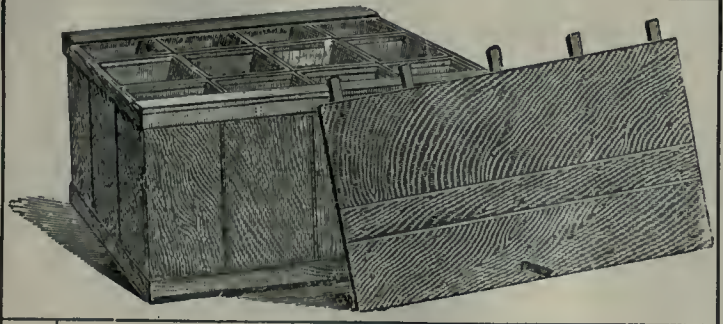
We would say to all who buy it that it does not contain a particle of poisonous substance and therefore no harm can result from its external use. Persistent, thorough use will cure many old or chronic ailments and it can be used on any case that requires an outward application with perfect safety.

A Perfectly Safe and Reliable Remedy for
Sore Throat
Chest Cold
Backache
Neuralgia
Sprains
Strains
Lumbago
Diphtheria
Sore Lungs
Rheumatism and
all Stiff Joints

REMOVES THE SORENESS--STRENGTHENS MUSCLES
Cornhill, Tex.—"One bottle Caustic Balsam did my rheumatism more good than $120.00 paid in doctor's bills." OTTO A. BEYER.
Price $1.50 per bottle. Sold by druggists, or sent by us express prepaid. Write for Booklet R.
The LAWRENCE-WILLIAMS COMPANY, Toronto, Can.

TRY THE SUPERIOR MFG. CO.
STENCIL BRANDS AND RUBBER STAMPS
WE MAKE ALL KINDS FOR ALL PURPOSES
124 YONGE ST. TORONTO.

BASKETS
We are Headquarters for all kinds of Splint Baskets



Veneer supplied for the protection of trees from mice during winter

FRUIT PACKAGES A SPECIALTY

SEND FOR OUR PRICES
The Oakville Basket Co. - Oakville, Ont.

Mention The Canadian Horticulturist when writing

Feed Your Land
WITH GOOD MANURE AND GET
GOOD RETURNS

MARCHMENT'S
SURE GROWTH COMPOST
—IS THE BEST—

Supplied to the Largest Nurserymen and Fruit Growers in Ontario

S. W. MARCHMENT
133 VICTORIA ST., TORONTO
Telephones Main 2841 Residence Park 951

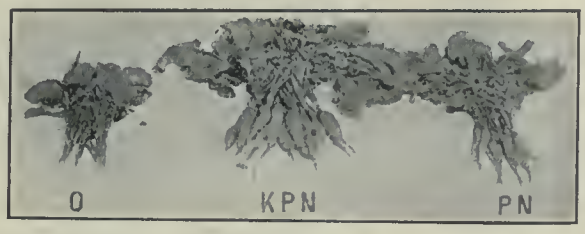
Mention The Canadian Horticulturist when writing

POTASH

for FIELD, GARDEN, ORCHARD

POTASH promotes maturity and counteracts the effect of an excess of nitrogen in the soil produced by a too heavy application of farmyard manure or from other causes. POTASH is a direct plant food and is indispensable

Fertilizer Experiment on Radishes by Otto Herold, Waterloo, Ont., 1906



Treatment: Unfertilized — With Potash — Without Potash
Result Non-saleable — $200.00 — $20.00 per acre realized

POTASH in the highly concentrated forms of Muriate of Potash and Sulphate of Potash is obtainable of all leading Fertilizer Dealers.

Pamphlets treating of the cultivation and fertilization of all farm crops will be sent free on application.

The Dominion Agricultural Offices
of the Potash Syndicate

1102, 1105 TEMPLE BUILDING, TORONTO

Mention The Canadian Horticulturist when writing

THE NEW WAY

THE OLD WAY

THE WAGGONER EXTENSION LADDER

is what you want for pruning and picking; also for general use about the place. It is reinforced with steel wire and is the lightest, strongest and handiest ladder made. Write for free illustrated circulars and price list.

The Waggoner Ladder Co.
Limited
LONDON, ONTARIO

Mention The Canadian Horticulturist when writing

Underwood

The Underwood Condensed Billing Typewriter describes itself in its title. An invoice (and as many carbon records as may be required) as well as the salesbook entry, are made at the one writing.

The salesbook entries are made on a long sheet and are condensed, eliminating all waste space. Both sides of the sheet are utilized; disintegration columns may be added to the right of the total column upon the sales sheet, in which sales can be classified according to departments or ledgers.

We have an interesting catalogue which illustrates and fully explains this and the other special Underwood bookkeeping typewriters. It is worth the trouble of asking for it.

United Typewriter Co.
Limited
7-9 ADELAIDE STREET EAST, TORONTO
and in all the principal cities

Mention The Canadian Horticulturist when writing.

THE PHOTO-ENGRAVERS
LIMITED.

DESIGNERS ILLUSTRATORS ENGRAVERS AND ETCHERS

10 JOHNSTON LANE

TORONTO PHONE MAIN 5251 ONTARIO

Mention The Canadian Horticulturist when writing